PLAN SYMBOLS

EXISTING / PROPOSED — CENTERLINE

EXISTING / PROPOSED — RIGHT-OF-WAY LINE

CONSTRUCTION / PERMANENT — EASEMENT LINE

LOT / SECTION — PROPERTY LINE

CONSTRUCTION LIMITS
CLEAR ZONE

INTERMEDIATE INDEX GRADE BREAK — EXISTING CONTOURS

INTERMEDIATE INDEX GRADE BREAK — PROPOSED CONTOURS

EXISTING / PROPOSED / EXISTING COUNTY — DITCH LINE

FENCE LINE – ANY TYPE

SILT FENCE

WETLAND BOUNDARY

TREE LINE / TREE SYMBOLS — EXISTING TREES (TO REMAIN)

X BM — BENCH MARK / IRON MONUMENT

LIGHT POLE / BOLLARD

SOIL BORING

BUILDING

PROPOSED — RIPRAP

MB — MAILBOX

EXISTING / PROPOSED — SIGN

UTILITY SYMBOLS

GAS LINE

PETROLEUM LINE

OVERHEAD / UNDERGROUND — ELECTRIC

UNDERGROUND TELEPHONE LINE

UNDERGROUND CABLE TV LINE

UNDERGROUND FIBER OPTIC LINE

MANHOLE / JUNC. BOX — TELEPHONE STRUCTURES

ELECTRIC JUNC. BOX

CABLE TV JUNC. BOX

MANHOLE / JUNC. BOX — FIBER OPTIC STRUCTURES

EXISTING — POWER POLE AND GUY WIRE

EXISTING / PROPOSED — STORM DRAIN LINE

EXISTING / PROPOSED — FLARED END SECTION

EXISTING / PROPOSED — CATCH BASIN

EXISTING / PROPOSED — MANHOLE

WELL

HATCH LEGEND

BITUMINOUS / CONCRETE

GRAVEL / HYDROMULCH — EROSION CONTROL

GRAVEL / CONCRETE / BITUMINOUS — REMOVAL

PLOT DATE: 5/17/2023 12:32

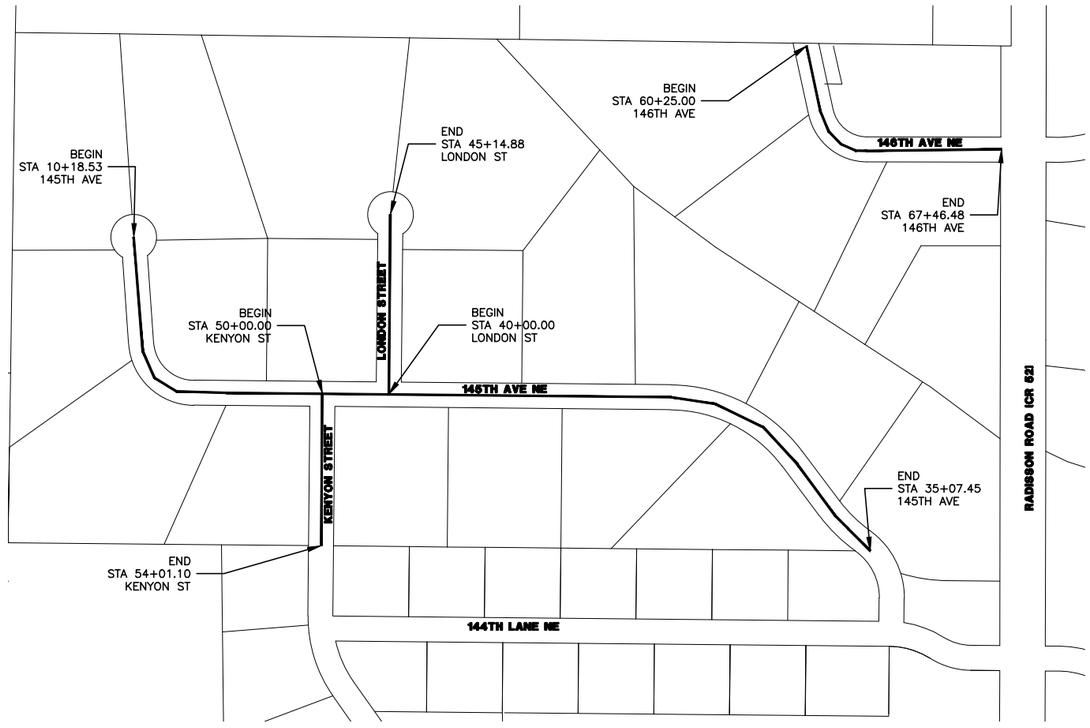
MINNESOTA DEPARTMENT OF TRANSPORTATION

City of Ham Lake, Minnesota

CONSTRUCTION PLAN FOR GRADING, AGGREGATE BASE, PLANT MIXED BITUMINOUS SURFACE, STORM DRAINS AND CONCRETE CURB

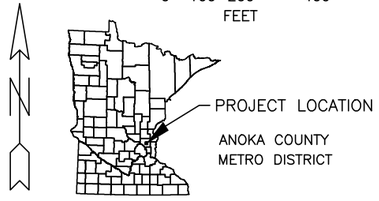
LOCATED ON 145TH AVENUE FROM 230 FT NORTH OF 144TH LANE TO CDS, LONDON STREET FROM 145TH AVENUE TO CDS, KENYON STREET FROM 216 FT NORTH OF 144TH LANE TO 145TH AVENUE, AND 146TH AVENUE FROM RADISSON ROAD TO CDS.

HAM LAKE PROJECT NO. 2105



PLAN REVISIONS		
DATE	SHEET NO.	APPROVED BY
10/10/22	28	DAK
5/10/23	16	TPC
5/17/23	15	TPC

0 100 200 400
FEET



ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MN MUTCD, INCLUDING FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

THE SUBSURFACE UTILITY INFORMATION IN THIS PLAN IS UTILITY QUALITY LEVEL D. THIS UTILITY QUALITY LEVEL WAS DETERMINED ACCORDING TO THE GUIDELINES OF CI/ASCE 38–02, ENTITLED "STANDARD GUIDELINES FOR THE COLLECTION AND DEPICTION OF EXISTING SUBSURFACE UTILITY DATA."

THE UTILITIES SHOWN ARE BASED UPON THE BEST INFORMATION AVAILABLE AND MAY NOT REFLECT THE ACTUAL EFFECTS ON THE UTILITIES BY CONSTRUCTION. ACTUAL DETERMINATIONS WILL BE MADE IN THE FIELD DURING CONSTRUCTION.

GOVERNING SPECIFICATIONS

THE 2020 EDITION OF THE MINNESOTA DEPARTMENT OF TRANSPORTATION "STANDARD SPECIFICATIONS FOR CONSTRUCTION" AND THE 2020 EDITION OF THE "MATERIAL LAB SUPPLEMENTAL SPECIFICATIONS FOR CONSTRUCTION" SHALL GOVERN.

ALL TRAFFIC CONTROL DEVICES AND SIGNING SHALL CONFORM TO THE MMUTCD, INCLUDING FIELD MANUAL FOR TEMPORARY TRAFFIC CONTROL ZONE LAYOUTS.

INDEX

ALL APPLICABLE FEDERAL, STATE AND LOCAL LAWS AND ORDINANCES WILL BE COMPLIED WITH IN THE CONSTRUCTION OF THIS PROJECT.

THIS PLAN CONTAINS 51 SHEETS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY LICENSED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

SIGNED. Dan Krueger

DATE: 6/29/2022 REG. NO. 48768

APPROVED. Thomas P. Collins DATE: 6/29/2022
CITY ENGINEER – HAM LAKE

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street NE
Ham Lake, MN 55304
Telephone 763–862–8000
Fax 763–862–8042

JOB NO. 2105
FILE: 34–2–113

STATEMENT OF ESTIMATED QUANTITIES

TAB	SHEET	NOTES	ITEM NO.	ITEM	UNIT	ENTIRE PROJECT ESTIMATED QUANTITIES
			2021.501	MOBILIZATION	LUMP SUM	1
AF	3		2101.505	CLEARING	ACRE	0.1
AF	3		2101.505	GRUBBING	ACRE	0.1
AI	3		2104.502	REMOVE DRAINAGE STRUCTURE	EACH	6
AJ	3	6	2104.502	REMOVE SIGN	EACH	9
AJ	3		2104.502	SALVAGE POST	EACH	4
AA	3	6	2104.502	SALVAGE SIGN	EACH	1
AD	3	12	2104.502	SALVAGE MAILBOX AND SUPPORT	EACH	21
BA	4		2104.503	SAWING CONCRETE PAVEMENT (FULL DEPTH) DRIVEWAY	LIN FT	116
BA	4		2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH) DRIVEWAY	LIN FT	300
AE	3		2104.503	SAWING BITUMINOUS PAVEMENT (FULL DEPTH)	LIN FT	145
AB	3		2104.503	REMOVE CONCRETE CULVERT	LIN FT	82
AB	3		2104.503	REMOVE METAL CULVERT	LIN FT	575
AG	3		2104.503	SALVAGE WOODEN FENCE	LIN FT	38
BA	4		2104.504	REMOVE CONCRETE DRIVEWAY PAVEMENT	SQ YD	299
BA	4		2104.504	REMOVE BITUMINOUS DRIVEWAY PAVEMENT	SQ YD	590
AH	3		2104.618	SALVAGE TIMBER RETAINING WALL	SQ FT	8
AJ	3	4, 5	2105.607	COMMON EXCAVATION	CU YD	2,807
AJ	3		2105.607	GRANULAR BORROW (CV)	CU YD	1,013
AJ	4	10	2211.509	AGGREGATE BASE (CV) CLASS 5, 4.0" THICK – BIT DRIVEWAY	SQ YD	543
AC	3	7, 8	2215.504	BITUMINOUS PAVEMENT RECLAMATION	SQ YD	12,507
BA	4	10	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (2;C) 2.0" THICK–DRIVEWAY	SQ YD	543
BB	4	11	2360.509	TYPE SP 9.5 WEARING COURSE MIXTURE (2;C)	TON	795
BC	4		2360.509	TYPE SP 12.5 NON WEARING COURSE MIXTURE (2;C)	TON	1,590
	26–29		2501.502	15" GS PIPE APRON	EACH	2
	26–29		2501.502	24" GS PIPE APRON	EACH	2
	26–29		2501.602	TRASH GUARD FOR 15" PIPE APRON	EACH	2
	26–29		2501.602	TRASH GUARD FOR 24" PIPE APRON	EACH	2
	26–29	1, 5	2503.503	15" CP PIPE SEWER (SMOOTH)	LIN FT	369
	26–29	1, 5	2503.503	24" CP PIPE SEWER (SMOOTH)	LIN FT	285
	26–29	1, 5	2503.503	12" RC PIPE SEWER DESIGN 3006 CLASS IV	LIN FT	306
	26–29	1, 5	2503.503	15" RC PIPE SEWER DESIGN 3006 CLASS IV	LIN FT	1,341
	26–29	1, 5	2503.503	18" RC PIPE SEWER DESIGN 3006 CLASS IV	LIN FT	782
	26–29	1, 5	2503.503	24" RC PIPE SEWER DESIGN 3006 CLASS IV	LIN FT	243
	26–29	2, 5	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL	EACH	16
	26–29	2, 5	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 1	EACH	16
	26–29	2, 5	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 2	EACH	4
	26–29	2, 5	2506.502	CONSTRUCT DRAINAGE STRUCTURE DESIGN SPECIAL 3	EACH	1
	26–29		2506.502	RAIN GUARDIAN	EACH	6
BL	4		2511.504	GEOTEXTILE FILTER TYPE 4	SQ YD	163
BK	4		2511.507	RANDOM RIPRAP CLASS III	CU YD	44
BD	4		2531.503	CONCRETE CURB AND GUTTER DESIGN D312 (MODIFIED)	LIN FT	8,218
BA	4	10	2531.504	6" CONCRETE DRIVEWAY PAVEMENT	SQ YD	296
BE	3–4	12	2540.602	INSTALL MAILBOX WITH SUPPORT	EACH	21
			2563.601	TRAFFIC CONTROL	LUMP SUM	1
BG	4	6	2564.518	SIGN PANELS TYPE C	SQ FT	31.8
	18–22	9	2573.501	STABILIZED CONSTRUCTION EXIT	EACH	3
BG	4	9	2573.502	STORM DRAIN INLET PROTECTION	EACH	35
BJ	4	9	2573.502	CULVERT END CONTROLS	EACH	4
BH	4	9	2573.503	SILT FENCE; TYPE MS	LIN FT	3,815
BH	4	9	2573.503	FLOTATION SILT CURTAIN TYPE MOVING WATER	LIN FT	62
		9	2573.503	FILTER BERM TYPE 4	LIN FT	174
BF	4	9	2575.504	ROLLED EROSION PREVENTION CATEGORY 15	SQ YD	1,223
BF	4	9	2575.504	ROLLED EROSION PREVENTION CATEGORY 25	SQ YD	983
	18–22	3	2575.605	TURF ESTABLISHMENT (25–151 SEEDING MIX)	ACRE	2.2
	18–22	3	2575.605	TURF ESTABLISHMENT (33–261 SEEDING MIX)	ACRE	0.5

NOTES:

1. SELECT GRANULAR BORROW, STRUCTURAL EXCAVATION, AND GRANULAR BACKFILL FOR STORM PIPES ARE INCIDENTAL.
2. FILTER FABRIC AND FABRIC WRAP FOR CATCH BASINS AND MANHOLES ARE INCIDENTAL.
3. ALL DISTURBED AREAS DETERMINED NOT TO BE PAVED, AGGREGATE SURFACE, CONCRETE SURFACE OR RIPRAPPED SHALL HAVE 4 INCHES OF TOPSOIL. FERTILIZER TYPE 2, MULCH MATERIAL, AND SEED MIXTURE NO. 33–261, MULCH TYPE 3 (WEED FREE MULCH) WITH NO FERTILIZER AND SEED MIXTURE NO. 25–151 PER MNDOT STANDARD SPECIFICATION 3876, APPLY TYPE 6 MULCH AT THE RATE OF 2 (TWO) TONS PER ACRE (TO ACHIEVE A 90% UNIFORM GROUND COVERAGE). SEED MIXTURE, WATER, TYPE 2 FERTILIZER, AND MULCH ARE INCIDENTAL. SOIL TESTING TO DETERMINE FERTILIZER MIXTURE RATIO AND RATE OF APPLICATION IS INCIDENTAL.
4. MATERIAL FOUND IN THE SUBCUTS THAT IS UNSUITABLE FOR FILL IN THE ROADBED SHALL BE REMOVED OFF–SITE.
5. THE CONTRACTOR SHALL NOT DISTURB AREAS OUTSIDE THE CONSTRUCTION LIMITS.
6. SIGNS INCLUDE POSTS.
7. AVERAGE DEPTH OF EXISTING BITUMINOUS PAVEMENT IS 3" TO 4".
8. AVERAGE DEPTH OF EXISTING BASE MATERIAL IS 4".
9. INSTALLATION AND MAINTENANCE ARE INCIDENTAL.
10. QUANTITY SHOWN USED FOR DRIVEWAY CONSTRUCTION. SEE DETAIL RFC–363A3.
11. BITUMINOUS MATERIAL FOR TACK COAT SHALL BE INCIDENTAL.
12. REMOVE SUPPORTS AND SALVAGE MAIL BOXES. SALVAGE MAIL BOXES ARE INCIDENTAL.

PLATE NO.	STANDARD PLATES – RFC ENGINEERING (IN THE PLANS)
RFC–355A	D312M CONCRETE CURB AND GUTTER
RFC–366E1	TYPICAL STREET SECTION
RFC–363A3	PRIVATE DRIVEWAY/FIELD ENTRANCE
RFC–367A	RESIDENTIAL CUL–DE–SAC
RFC–380A	CURB END
RFC–459B	RECTANGULAR CATCH BASIN
RFC–463	FABRIC AROUND CATCH BASIN
RFC–465A1	RECTANGULAR INLET FOR ROUND MANHOLE
RFC–465A3	RECTANGULAR INLET FOR ROUND MANHOLE – VARIABLE SUMP
RFC–465C	ROUND MANHOLE
RFC–466C	CPP TRASH GUARD
RFC–654	STORM DRAIN BEDDING FOR RIGID AND FLEXIBLE PIPE *MNDOT DETAIL
RFC–582A1	EMERGENCY OVERFLOW WEIR
RFC–858B	TYPICAL INFILTRATION/RETENTION POND
RFC–857	SILT FENCE AT FES

SEED MIX 25–151: RESIDENTIAL TURF
MULCH TYPE 6
PLANT APRIL 1ST – JUNE 1ST FOR SPRING PLANTING OR JULY 20TH – SEPTEMBER 20TH FOR FALL PLANTING

SEED MIX 33–261: PONDS & WET AREAS IN CENTRAL, SOUTHERN AND WESTERN MN
MULCH TYPE 3
PLANT APRIL 15TH – JULY 20TH FOR SPRING PLANTING OR SEPTEMBER 20TH – OCTOBER 20TH FOR FALL PLANTING

THE FOLLOWING STANDARD PLATES, APPROVED BY THE FEDERAL HIGHWAY ADMINISTRATION, SHALL APPLY

PLATE NO.	MnDOT STANDARD PLATES – IN MnDOT STANDARD PLATES MANUAL
3000L	REINFORCED CONCRETE PIPE (5 SHEETS)
3006G	GASKET JOINT FOR R.C. PIPE (2 SHEETS)
3129A	METAL APRON FOR CORRUGATED POLYETHYLENE PIPE
3134D	RIPRAP AT CSP OUTLETS
7100H	CONCRETE CURB & GUTTER
8000K	TEMPORARY CHANNELIZERS (3 SHEETS)
9350B	MAILBOX SUPPORT (SWING–AWAY TYPE)

BASIS FOR ESTIMATED QUANTITIES

AGGREGATE BASE	105 LBS/S.Y./INCH
BITUMINOUS MIXTURE	110 LBS/S.Y./INCH
TACK COAT	0.05 GAL./S.Y.
TYPE I MULCH	2 TONS/ACRE

GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:32

UTILITIES:
CENTURYLINK (763) 712–5017
CENTERPOINT ENERGY (763) 323–2760
COMCAST (952) 607–4078
CONNEXUS ENERGY (763) 323–4268
XCEL ENERGY (612) 526–4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Ringler
DATE 6/29/2022 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763–862–8000
Fax 763–862–8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
STATEMENT OF ESTIMATED QUANTITIES

DWG: 2105 QTY
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 2 OF 51
FILE: 34–2–114

REMOVE SIGN PANELS TYPE C						AA
STATION	LOCATION	TYPE	SIGN NO.	POST	CODE NO.	PANEL LEGEND
25+23	145TH AVE. – RT	REMOVE	C–26	SINGLE	W1–2R	CURVE RIGHT
31+75	145TH AVE. – LT	REMOVE	C–27	SINGLE	W1–2L	CURVE LEFT
34+79	145TH AVE. – LT	REMOVE	C–28	SINGLE	W1–8L	CURVE
40+30	LONDON ST. – RT	REMOVE	C–23	SINGLE	D3–1	STREET
50+29	KENYON ST. – RT	REMOVE	C–23	SINGLE	D3–1	STREET
60+02	146TH AVE. – RT	SALVAGE	C–29	SINGLE		CUL–DE–SAC EXTENSION
66+92	146TH AVE. – LT	REMOVE	C–22	SINGLE	W14–1	DEAD END
67+33	146TH AVE. – RT	REMOVE	C–21	SINGLE	R1–1	STOP
67+33	146TH AVE. – LT	REMOVE	C–23	SINGLE	D3–1	STREET
			TOTAL	9		

REMOVE CULVERTS			AB
STATION	LOCATION	TYPE	LENGTH (LIN FT)
10+94	145TH AVE. – ACROSS	RCP	55
10+94	145TH AVE. – RT	CMP	102
27+16	145TH AVE. – ACROSS	RCP	27
27+16	145TH AVE. – LT	CMP	140
27+16	COON CREEK	CMP	31
45+15	LONDON ST. RT	CMP	171
64+11	146TH AVE. – RT	CMP	131
TOTAL			657

RECLAIM BITUMINOUS PAVEMENT		AC
STATION	LOCATION	SQ YD
10+21.95 TO 35+07.45	145TH AVE. – ROADWAY	7,159
40+10.95 TO 45+14.38	LONDON ST. – ROADWAY	1,758
50+11.93 TO 54+01.10	KENYON ST. – ROADWAY	1,160
60+11.01 TO 67+46.48	146TH AVE. – ROADWAY	2,430
TOTAL		12,507

SALVAGE MAILBOX SUPPORT		AD
STATION	LOCATION	TYPE
11+18	145TH AVE. – LT	DOUBLE
12+31	145TH AVE. – RT	SINGLE
12+67	145TH AVE. – LT	SINGLE
15+08	145TH AVE. – RT	SINGLE
16+62	145TH AVE. – RT	SINGLE
19+05	145TH AVE. – LT	SINGLE
21+25	145TH AVE. – LT	SINGLE
22+96	145TH AVE. – LT	SINGLE
25+23	145TH AVE. – LT	SINGLE
27+22	145TH AVE. – LT	SINGLE
27+86	145TH AVE. – LT	SINGLE
32+49	145TH AVE. – LT	DOUBLE
42+90	LONDON ST. – RT	SINGLE
44+08	LONDON ST. – RT	SINGLE
44+08	LONDON ST. – LT	SINGLE
60+66	146TH AVE. – RT	SINGLE
61+63	146TH AVE. – LT	SINGLE
62+06	146TH AVE. – RT	SINGLE
64+86	146TH AVE. – RT	SINGLE
TOTAL		21

SAWCUT BITUMINOUS PAVEMENT		AE
STATION	LOCATION	LIN FT
35+07.45	145TH AVE. – ROADWAY	30
54+01.10	KENYON ST. – ROADWAY	31
67+46.45	146TH AVE. – ROADWAY	84
TOTAL		145

TREE REMOVAL			AF
STATION	LOCATION	CLEARING (ACRE)	GRUBBING (ACRE)
27+16	145TH AVE. – LT	0.1	0.1
TOTAL		0.1	0.1

SALVAGE WOODEN FENCE		AG
STATION	LOCATION	LIN FT
27+16	145TH AVE. – LT	38
TOTAL		38

SALVAGE RETAINING WALL		AH
STATION	LOCATION	SQ FT
43+10	LONDON ST. – RT	8
TOTAL		8

REMOVE STRUCTURE		AI
STATION	LOCATION	QUANTITY
10+94	145TH AVE. – ACROSS	2
27+16	145TH AVE. – ACROSS	2
45+15	LONDON ST. RT	1
64+11	146TH AVE. – RT	1
TOTAL		6

SALVAGE POST			AJ
STATION	LOCATION	TYPE	POST
27+16	145TH AVE. – LT	WOOD	SINGLE
27+16	145TH AVE. – LT	WOOD	SINGLE
27+16	145TH AVE. – LT	WOOD	SINGLE
45+35	LONDON ST. – RT	METAL	SINGLE
TOTAL			4

NOTES

1. TOP OF GRADING SUBGRADE IS DEFINED AS THE BOTTOM OF THE CLASS 5 AGGREGATE BASE.
2. BITUMINOUS AND CONCRETE DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFFSITE IN ACCORDANCE WITH MnDOT SPEC. 2104.3C3.
3. COMPACTION OF ALL GRADING AND BASE ITEMS SHALL BE BY THE "QUALITY COMPACTION METHOD".
4. USE TACK COAT BETWEEN ALL BITUMINOUS LAYERS AND BETWEEN BITUMINOUS AND CONCRETE CURB AND GUTTER.
5. STRIP ALL TOPSOIL AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE TOPSOIL OR USE AS FILL OUTSIDE OF ROAD CORE.
6. WHENEVER THE WORD "INCIDENTAL" IS USED IN THIS PLAN, IT SHALL MEAN THIS WORK SHALL BE INCIDENTAL FOR WHICH NO DIRECT COMPENSATION WILL BE MADE.
7. STATIONING FOR LOCATION OF EXISTING AND NEW SIGNS IS APPROXIMATE.
8. EXCESS MATERIAL TO BE HAULED AWAY TO CITY OF HAM LAKE PUBLIC WORKS.

EARTHWORK SUMMARY — AJ

EXCAVATION (CU YD)

TOPSOIL 1,513 CU YD (EV)
COMMON 1,294 CU YD (EV)
BIT RECLAIM 340 CU YD (EV)
→ 3,147 CU YD (EV) ①

TOPSOIL 1,513 CU YD (EV)/1.1 = 1,375 CU YD (CV)
COMMON EX 1,294 CU YD (EV)/1.3 = 995 CU YD (CV)
GRANULAR FILL 1,013 CY YD (CV)

EMBANKMENT (CU YD)

3,693 CU YD (CV) ②
- 1,452 CU YD (CV) TOPSOIL
- 2,241 CU YD (CV) COMMON

NOTES:
① TOTAL EXCAVATION (EV) REQUIRED FOR PROJECT.
② TOTAL EMBANKMENT (CV) REQUIRED FOR PROJECT.

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:
CENTURYLINK (763) 712–5017
CENTERPOINT ENERGY (763) 323–2760
COMCAST (952) 607–4078
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DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
DATE 6/29/2022 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763–862–8000
Fax 763–862–8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
EARTHWORK SUMMARY AND TABULATIONS

DWG: 2105 TAB 1
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 3 OF 51
FILE: 34–2–115

RESIDENTIAL DRIVEWAYS — BA

STATION	LOCATION	REMOVE (S.Y.)		SAWCUT (L.F.)		PLACE (S.Y.)		
		CONC	BIT	CONC	BIT	CONC	BIT	CL5
10+30	LT.		38.6		25.5		38.0	38.0
10+44	RT.	66.4	5.7	33		76.9		
12+50	RT.		37.6		23.0		35.0	35.0
13+00	LT.		29.0		19.4		26.9	26.9
15+19	RT.		62.2		23		61.3	61.3
16+86	RT.		25.6		22.5		23.5	23.5
18+77	LT.		61.6		28.7		54.3	54.3
20+65	RT.	26		15.3		21.5		
21+31	RT.	35.7		11.9		30.6		
23+36	RT.		14.6		15.9		12.8	12.8
25+37	LT.		29.6		15.9		25.5	25.5
26+61	RT.		53.6		21.4		47.3	47.3
28+00	LT.		26.1		15.5		22.8	22.8
32+32	LT.		26.0		16.0		22.3	22.3
32+59	RT.		22.8		15.2		20.3	20.3
43+10	RT.		17.4		10.0		13.3	13.3
44+61	RT.		15.8		12.4		17.6	17.6
45+15	LT.	27.7		10.6		29.1		
52+10	LT.	46.8		12.0		42.8		
60+50	RT.	27		11.9		28.9		
61+83	LT.	69.4		21.3		66.2		
62+32	RT.		81.2		20.4		82.3	82.3
64+57	RT.		42.6		15.2		39.8	39.8
TOTAL		299	590	116	300	296	543	543

TYPE SP 9.5 BITUMINOUS WEARING COURSE MIXTURE (SPWEA240C) — BB

STATION TO STATION	LOCATION	SQ. YD. (1 IN)	TON
10+20.00 TO 35+07.45	145TH AVENUE – ROADWAY	67,881.7	456
40+13.00 TO 45+15.00	LONDON STREET – ROADWAY	16,681.1	112
50+13.00 TO 54+01.10	KENYON STREET – ROADWAY	10,555.2	71
60+11.67 TO 67+46.45	146TH AVENUE – ROADWAY	23,141.4	156
TOTAL			795

TYPE SP 12.5 BITUMINOUS WEARING COURSE MIXTURE (SPWEB240C) — BC

STATION TO STATION	LOCATION	SQ. YD. (2 IN)	TON
10+20.00 TO 35+07.45	145TH AVENUE – ROADWAY	67,881.65	913
40+13.00 TO 45+15.00	LONDON STREET – ROADWAY	16,691.07	224
50+13.00 TO 54+01.10	KENYON STREET – ROADWAY	10,549.23	142
60+11.67 TO 67+46.45	146TH AVENUE – ROADWAY	23,149.35	311
TOTAL			1,590

CONCRETE CURB & GUTTER DESIGN D312 MODIFIED — BD

STATION TO STATION	LOCATION	LIN FT
STATION TO STATION	LOCATION	LIN FT
10+19.00 TO 18+44.83	145TH AVE. – R	877
10+19.00 TO 20+19.83	145TH AVE. – L	1,011
19+34.83 TO 35+07.45	146th AVE. – R	1,562
21+09.83 TO 35+07.45	147th AVE. – L	1,409
40+14.00 TO 45+16.00	LONDON ST. – R	550
40+14.00 TO 45+16.00	LONDON ST. – L	550
50+14.00 TO 54+01.10	KENYON ST. – R	406
50+14.00 TO 54+01.10	KENYON ST. – L	405
60+10.67 TO 67+04.89	146th AVE. – R	746
60+10.67 TO 67+04.89	146th AVE. – L	702
TOTAL		8,218

MAILBOX SUPPORT (SWING–AWAY TYPE) — BE

STATION	LOCATION	TYPE
STATION	LOCATION	TYPE
11+18	145TH AVE. – LT	DOUBLE
12+31	145TH AVE. – RT	SINGLE
12+67	145TH AVE. – LT	SINGLE
15+08	145TH AVE. – RT	SINGLE
16+62	145TH AVE. – RT	SINGLE
19+05	145TH AVE. – LT	SINGLE
21+25	145TH AVE. – LT	SINGLE
22+96	145TH AVE. – LT	SINGLE
25+23	145TH AVE. – LT	SINGLE
27+22	145TH AVE. – LT	SINGLE
27+86	145TH AVE. – LT	SINGLE
32+49	145TH AVE. – LT	DOUBLE
42+90	LONDON ST. – RT	SINGLE
44+08	LONDON ST. – RT	SINGLE
44+08	LONDON ST. – LT	SINGLE
60+66	146TH AVE. – RT	SINGLE
61+63	146TH AVE. – LT	SINGLE
62+06	146TH AVE. – RT	SINGLE
64+86	146TH AVE. – RT	SINGLE
TOTAL		21

EROSION CONTROL BLANKET — BF

STATION	LOCATION	CATEGORY	SQ. YD.
10+89	145TH AVE. – RT	15	386
27+15	145TH AVE. – LT	15	269
27+15	145TH AVE. – LT	25	983
45+50	LONDON ST. – RT	15	318
64+07	146TH AVE. – RT	15	250
TOTAL			2,206

SILT FENCE — BH

STATION TO STATION	LOCATION	LIN. FT.
10+00.36 TO 10+11.63	145TH AVE. – LT	37
10+00.36 TO 10+14.70	145TH AVE. – RT	47
10+41.37 TO 12+28.14	145TH AVE. – RT	220
12+52.91 TO 15+07.20	145TH AVE. – RT	300
14+37.59 TO 15+62.06	145TH AVE. – LT	224
21+68.29 TO 23+12.54	145TH AVE. – RT	318
23+04.44 TO 25+28.96	145TH AVE. – LT	225
25+44.91 TO 27+90.15	145TH AVE. – LT	248
28+46.75 TO 29+44.62	145TH AVE. – LT	107
32+38.29 TO 35+09.68	145TH AVE. – LT	277
32+64.78 TO 35.09.68	145TH AVE. – RT	253
41+10.71 TO 42+68.52	LONDON ST. – RT	148
50+42.31 TO 51+54.37	KENYON ST. – RT	244
52+94.69 TO 54+01.10	KENYON ST. – RT	119
53+72.08 TO 54+01.10	KENYON ST. – LT	46
60+04.90 TO 60+06.40	146TH AVE. – LT	37
60+04.90 TO 60+41.11	146TH AVE. – RT	83
61+29.31 TO 62+27.05	146TH AVE. – RT	109
62+31.58 TO 65+14.74	146TH AVE. – LT	440
62+44.62 TO 64+48.57	146TH AVE. – RT	232
67+01.00 TO 67+43.45	146TH AVE. – RT	53
67+20.00 TO 67+43.45	146TH AVE. – LT	48
TOTAL		3,815

FLOATING SILT FENCE

STATION	LOCATION	LIN FT
27+20 TO 27+82	COON CREEK	62
TOTAL		62

STORM DRAIN INLET PROTECTION — BI

STATION	LOCATION	QUANTITY
11+00	145TH AVE. – BOTH	2
12+73	145TH AVE. – BOTH	2
13+36	145TH AVE. – LT	1
14+37	145TH AVE. – BOTH	2
15+47	145TH AVE. – RT	1
17+76	145TH AVE. – BOTH	2
19+13	145TH AVE. – RT	1
23+00	145TH AVE. – RT	1
23+74	145TH AVE. – LT	1
25+00	145TH AVE. – BOTH	2
26+30	145TH AVE. – BOTH	2
27+16	145TH AVE. – BOTH	2
28+87	145TH AVE. – BOTH	2
30+42	145TH AVE. – BOTH	2
31+81	145TH AVE. – RT	1
32+52	145TH AVE. – LT	1
42+00	LONDON ST. – BOTH	2
43+91	LONDON ST. – BOTH	2
45+15	LONDON ST. – RT	1
51+00	KENYON ST. – BOTH	2
52+40	KENYON ST. – LT	1
63+41	146TH AVE. – BOTH	2
TOTAL		35

CULVERT END CONTROL — BJ

STATION	LOCATION	QUANTITY
10+82	145TH AVE. – RT	1
27+16	145TH AVE. – LT	1
46+86	LONDON ST. RT	1
63+51	146TH AVE. – RT	1
TOTAL		4

RIPRAP CLASS 3 — BK

STATION	LOCATION	CU. YD.
10+82	145TH AVE. – RT	9.6
27+16	145TH AVE. – LT	9.6
27+16	COON CREEK	15.0
46+86	LONDON ST. RT	4.9
63+51	146TH AVE. – RT	4.9
TOTAL		44

GEOTEXTILE FABRIC TYPE IV — BL

STATION	LOCATION	SQ. YD.
10+82	145TH AVE. – RT	34.2
27+16	145TH AVE. – LT	34.2
27+16	COON CREEK	53.2
46+86	LONDON ST. RT	20.7
63+51	146TH AVE. – RT	20.7
TOTAL		163

SIGN PANELS TYPE C — BG

SIGN NO.	TOTAL QTY.	NOTES	POST	PANEL			CODE NO.	PANEL LEGEND
				SIZE (IN)	AREA (SQ. FT.)	TOTAL AREA (SQ. FT.)		
C–1	1		SINGLE	30 X 30	6.25	6.25	R1–1	STOP
C–2	3		SINGLE	30 X 30	6.25	18.8	W14–1	DEAD END
C–3	6	8	SINGLE	VARIES X 8			D3–1	STREET SIGN
C–4	1		SINGLE	30 X 24	5	5.0		CUL–DE–SAC EXTENTION
C–5	3		SINGLE	18X18	2.25	6.8	OM4–2	END OF ROAD MARKER
TOTAL	14					31.8		

NOTES:
1. TOP OF GRADING SUBGRADE IS DEFINED AS THE BOTTOM OF THE CLASS 5 AGGREGATE BASE.
2. BITUMINOUS AND CONCRETE DISTURBED BY CONSTRUCTION SHALL BECOME THE PROPERTY OF THE CONTRACTOR AND SHALL BE DISPOSED OF OFFSITE IN ACCORDANCE WITH MnDOT SPEC. 2104.3C3.
3. COMPACTION OF ALL GRADING AND BASE ITEMS SHALL BE BY THE "QUALITY COMPACTION METHOD".
4. USE TACK COAT BETWEEN ALL BITUMINOUS LAYERS AND BETWEEN BITUMINOUS AND CONCRETE CURB AND GUTTER.
5. STRIP ALL TOPSOIL AREAS TO BE DISTURBED BY CONSTRUCTION AND REUSE TOPSOIL OR USE AS FILL OUTSIDE OF ROAD CORE.
6. WHENEVER THE WORD "INCIDENTAL" IS USED IN THIS PLAN, IT SHALL MEAN THIS WORK SHALL BE INCIDENTAL FOR WHICH NO DIRECT COMPENSATION WILL BE MADE.
7. STATIONING FOR LOCATION OF EXISTING AND NEW SIGNS IS APPROXIMATE.
8. SIGN AND POST INSTALLED BY OTHERS

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:
CENTURYLINK (763) 712–5017
CENTERPOINT ENERGY (763) 323–2760
COMCAST (952) 607–4078
CONNEXUS ENERGY (763) 323–4268
XCEL ENERGY (612) 526–4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

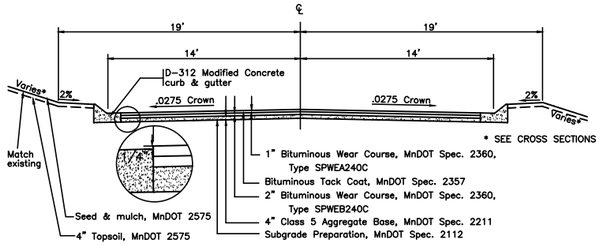
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krueger
DATE 6/29/2022 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763–862–8000
Fax 763–862–8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
EARTHWORK SUMMARY AND TABULATIONS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

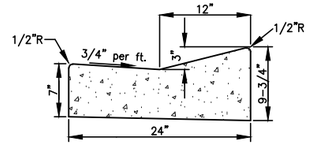
DWG: 2105 TAB 2
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 4 OF 51
FILE: 34–2–116



TYPICAL URBAN SECTION

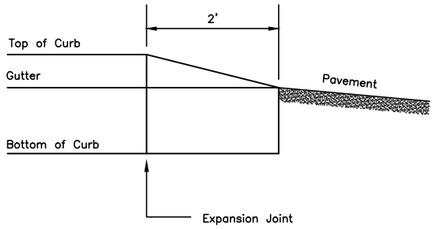
TYPICAL STREET SECTIONS RFC–366E1

NOT TO SCALE



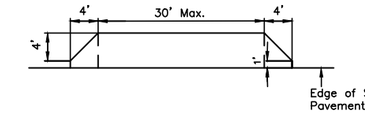
D312 MODIFIED CONCRETE CURB AND GUTTER RFC–355A

NOT TO SCALE



CURB END DETAIL RFC–380A

NOT TO SCALE

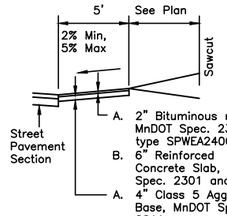


Note:

① Match existing driveway width and elevation at matchline unless otherwise directed by engineer (See Plans).

② If existing driveway is concrete, apron and driveway shall be constructed of 6" concrete with 6" x 6" – 6/6 welded wire fabric per MnDOT Spec. 3303 in flat sheets, not rolls. Epoxy coated dowel bars conforming to MnDOT Spec. 3302 shall be placed in the existing driveway pavement along the sawcut line. Dowel bars shall be properly coated with a MnDOT approved lubricant. Dowel bars shall be size #4 and placed at 24" OC. All work shall conform to MnDOT Spec. 2301 and 2531. Concrete shall be ready–mix 3,900 PSI at 28 days, with air content of 5% to 7%, coarse aggregate shall be 1" max, class A and per MnDOT Spec. 3137. Joint sealer shall be hot–poured, low modulus, mastic type per MnDOT Spec. 3725. Membrane curing compound shall be per MnDOT Specs. 3754 and 2301.3M.

③ If existing driveway is gravel, apron and driveway within R/W shall be constructed per existing bituminous driveways. Gravel driveways matching beyond R/W shall be 6" Class 5.

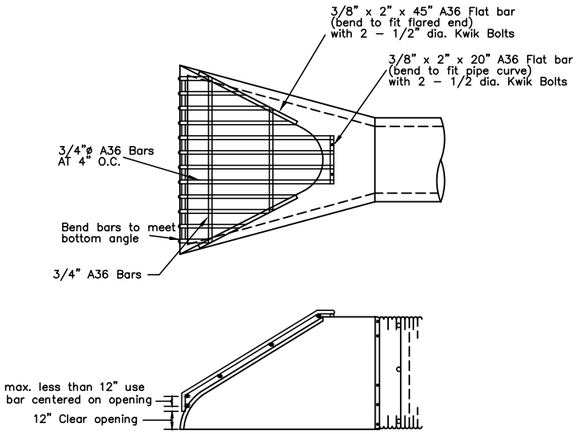


④ If existing driveway is bituminous, apron and driveway behind apron shall be bituminous per A. above. All bituminous work shall conform to MnDOT Specifications 2112, 2211, 2357 and 2360. Tack coat is to be applied between concrete and bituminous surfaces.

⑤ Driveways in fill sections to slope up from 1" curb lip to end of apron (5' from back of curb) at min of 2% then slope to matchline. See Plan for slope.

PRIVATE DRIVEWAY/FIELD ENTRANCE RFC–363A3

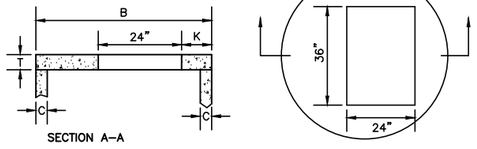
NOT TO SCALE



CPP TRASH GUARD RFC–466C

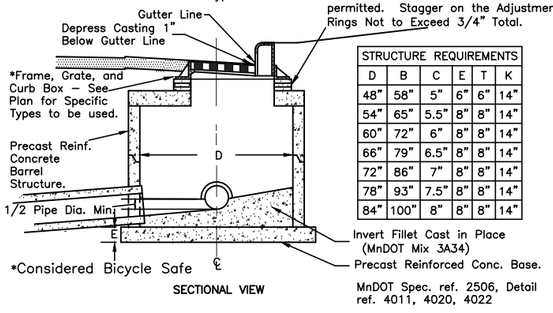
NOT TO SCALE

NOTE:
HS20 Roadway Loading Catch Basin Cover Slab of Precast Reinforced Concrete with Rectangular Opening.



Note:
1. Steps needed for structure height greater than 4'.
2. Cover Slab to Rest on Bed of Mortar on Full Thickness of Structure Walls, not to Rest on Pipe Tongue or Groove.
3. Location of Structure as Shown in Plans.
4. See Plan for Box and Grate Type.

Adjusting Rings, 2 Min., 3 Max., Full 3/8" Bed of Mortar Between Rings. Plaster Exterior Only with 2" Min. Thick Coat. Strike Off Interior. No shims permitted. Stagger on the Adjustment Rings Not to Exceed 3/4" Total.



SECTIONAL VIEW

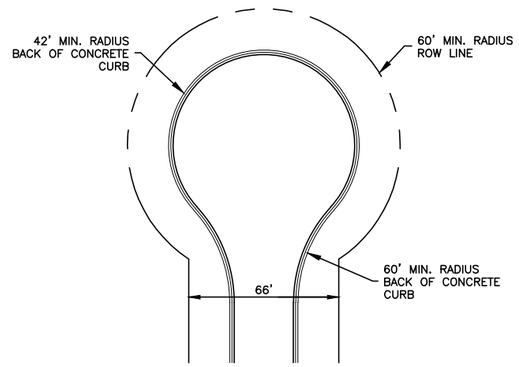
STRUCTURE REQUIREMENTS					
D	B	C	E	T	K
48"	58"	5"	6"	6"	14"
54"	65"	5.5"	8"	8"	14"
60"	72"	6"	8"	8"	14"
66"	79"	6.5"	8"	8"	14"
72"	86"	7"	8"	8"	14"
78"	93"	7.5"	8"	8"	14"
84"	100"	8"	8"	8"	14"

RECTANGULAR INLET FOR ROUND MANHOLE RFC–465A1

NOT TO SCALE

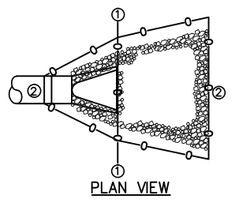
SPECIAL 1 = 48" ø

SPECIAL 3 = 60" ø



TYPICAL RESIDENTIAL CUL–DE–SAC RFC–367A

NOT TO SCALE

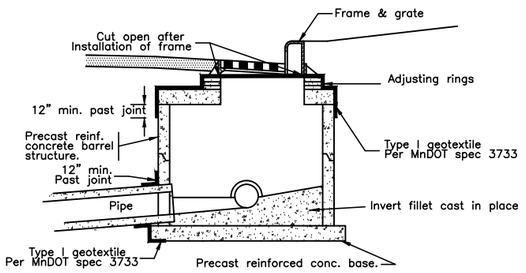


PLAN VIEW

SEQUENCING:
1. Place silt fence along construction limits, the portion of silt fence in front of the pipe shall be removed during flared end section placement.
2. Once the flared end section is placed, silt fence shall be furnished and installed around the top of the flared end section and surrounding the riprap.
3. Any additional outlet protection shall be added as required.
4. Contractor may substitute silt fence for bio–roll or rock log to act as weir for flow into culvert.

SILT FENCE AT FES RFC–857

NOT TO SCALE



SEAL FABRIC ONTO CATCH BASIN AND CATCH BASIN MANHOLE WITH DUCT TAPE. OVER LAP ALL SEAMS. 12" MIN.

SECTIONAL VIEW

FABRIC AROUND CATCH BASIN RFC–463

NOT TO SCALE

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:
CENTURYLINK (763) 712–5017
CENTERPOINT ENERGY (763) 323–2760
COMCAST (952) 607–4078
CONNEXUS ENERGY (763) 323–4268
XCEL ENERGY (612) 526–4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krueger
DATE 6/29/2022 REG. NO. 48768

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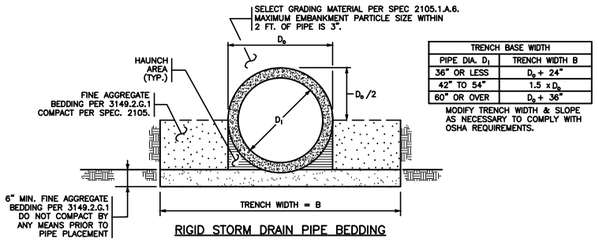
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763–862–8000
Fax 763–862–8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
DETAILS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2105 DETAIL 1
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 5 OF 51
FILE: 34–2–117



TRENCH BASE WIDTH	
PIPE DIA. D_i	TRENCH WIDTH B
36" OR LESS	D_o + 24"
42" TO 54"	1.5 x D_o
60" OR OVER	D_o + 36"

MODIFY TRENCH WIDTH & SLOPE AS NECESSARY TO COMPLY WITH OSHA REQUIREMENTS.

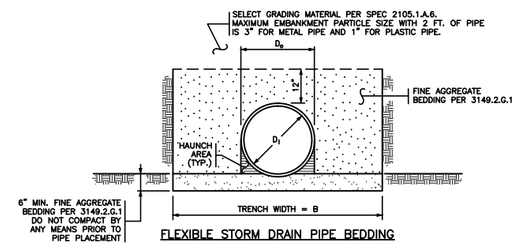
RIGID STORM DRAIN PIPE BEDDING

CONSTRUCTION SEQUENCE

1. LOOSELY PLACE 6" OF FINE AGGREGATE BEDDING MATERIAL TO GRADE, DO NOT COMPACT PRIOR TO PIPE PLACEMENT.
2. FOR PIPES WITH BELL, REMOVE MATERIAL IN BELL AREA PRIOR TO PLACEMENT.
3. FURNISH AND INSTALL PIPE TO GRADE.
4. AFTER PLACEMENT OF THE PIPE, PLACE ADDITIONAL BEDDING AND COMPACT THE FULL LENGTH ON BOTH SIDES OF THE PIPE UNDERNEATH THE HAUNCH AREA BY FIRST SHOVEL SLICING (MANUALLY SHOVE THE BLADE END OF SHOVEL AT AN ANGLE DOWN THE ENTIRE LENGTH OF THE HAUNCH UNDER THE PIPE) THEN COMPACT THE HAUNCH AT AN ANGLE USING A POWERED MECHANICAL OR PNEUMATIC DEVICE (I.E. POLE TAMPER, JUMPING JACK, OR SIMILAR).COMPACT THE REMAINING MATERIAL OUTSIDE THE HAUNCH AREA TO THE REQUIREMENTS OF THE APPLICABLE MATERIAL TYPE ENSURING THAT THE ENTIRE LENGTH OF PIPE IS SUPPORTED UNIFORMLY BY BEDDING.
5. PLACE AND COMPACT BACKFILL EVENLY AND SIMULTANEOUSLY IN 6" LIFTS ON EACH SIDE OF THE PIPE UP TO THE MID-HEIGHT WHEN COMPACTED.
6. COMPLETE REMAINING BACKFILL.

NOTES

EXCAVATE & CONSTRUCT ALL TRENCHES AND SLOPES PER OSHA REQUIREMENTS.
PIPE SIZE IS BASED ON THE NOMINAL INSIDE DIAMETER.
PROTECT ALL PIPE DURING CONSTRUCTION PER SPEC. 2501 OR 2503.



FLEXIBLE STORM DRAIN PIPE BEDDING

TRENCH BASE WIDTH	
PIPE DIA. D_i	TRENCH WIDTH B
36" OR LESS	D_o + 24"
42" TO 48"	1.5 x D_o

MODIFY TRENCH WIDTH & SLOPE AS NECESSARY TO COMPLY WITH OSHA REQUIREMENTS.

CONSTRUCTION SEQUENCE

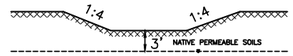
1. LOOSELY PLACE 6" OF FINE AGGREGATE BEDDING MATERIAL TO GRADE, DO NOT COMPACT PRIOR TO PIPE PLACEMENT.
2. FOR PIPES WITH BELL, REMOVE MATERIAL IN BELL AREA PRIOR TO PLACEMENT.
3. FURNISH AND INSTALL PIPE TO GRADE.
4. AFTER PLACEMENT OF THE PIPE, PLACE ADDITIONAL BEDDING AND COMPACT THE FULL LENGTH ON BOTH SIDES OF THE PIPE UNDERNEATH THE HAUNCH AREA BY FIRST SHOVEL SLICING (MANUALLY SHOVE THE BLADE END OF SHOVEL AT AN ANGLE DOWN THE ENTIRE LENGTH OF THE HAUNCH UNDER THE PIPE) THEN COMPACT THE HAUNCH AT AN ANGLE USING A POWERED MECHANICAL OR PNEUMATIC DEVICE (I.E. POLE TAMPER, JUMPING JACK, OR SIMILAR).COMPACT THE REMAINING MATERIAL OUTSIDE THE HAUNCH AREA TO THE REQUIREMENTS OF THE APPLICABLE MATERIAL TYPE ENSURING THAT THE ENTIRE LENGTH OF PIPE IS SUPPORTED UNIFORMLY BY BEDDING.
5. PLACE AND COMPACT BACKFILL EVENLY AND SIMULTANEOUSLY IN 6" LIFTS ON EACH SIDE OF THE PIPE UP TO THE MID-HEIGHT WHEN COMPACTED.
6. COMPLETE REMAINING BACKFILL.

NOTES

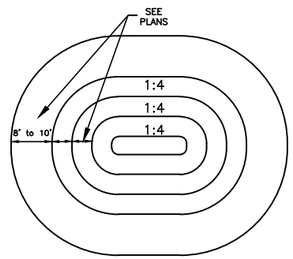
EXCAVATE & CONSTRUCT ALL TRENCHES AND SLOPES PER OSHA REQUIREMENTS.
PIPE SIZE IS BASED ON THE NOMINAL INSIDE DIAMETER.
PROTECT ALL PIPE DURING CONSTRUCTION PER SPEC. 2501 OR 2503.

STORM DRAIN BEDDING FOR RIGID AND FLEXIBLE PIPE RFC-654

NOT TO SCALE



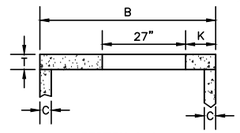
SEASONALLY HIGH WATER TABLE



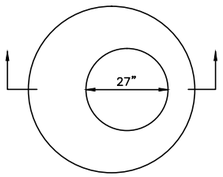
TYPICAL INFILTRATION/RETENTION POND RFC-858B

NOT TO SCALE

NOTE:
HS20 Roadway Loading Catch Basin Cover Slab of Precast Reinforced Concrete with Round Opening.



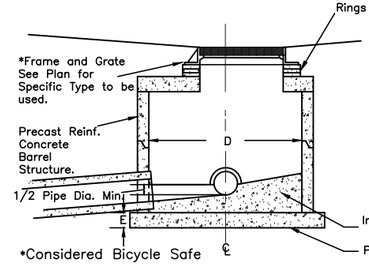
SECTION A-A



PLAN OF COVER SLAB

Note:
1. Steps needed for structure height greater than 4'.
2. Cover Slab to Rest on Bed of Mortar on Full Thickness of Structure Walls, not to Rest on Pipe Tongue or Groove.
3. Location of Structure as Shown in Plans.

Adjusting Rings, 2 Min., 3 Max., Full 3/8" Bed of Mortar Between Rings. Plaster Exterior Only with 2" Min. Thick Coat. Strike Off Interior. No shims permitted. Stager on the Adjustment Rings Not to Exceed 3/4" Total.



SECTIONAL VIEW

MnDOT Spec. ref. 2506, Detail ref. 4011, 4020

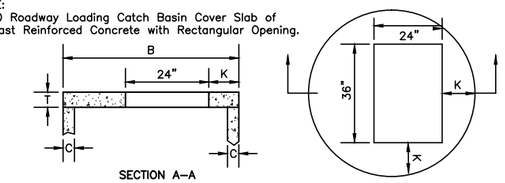
STRUCTURE REQUIREMENTS					
D	B	C	E	T	K
48"	58"	5"	6"	6"	14"
54"	65"	5.5"	8"	8"	14"
60"	72"	6"	8"	8"	14"
66"	79"	6.5"	8"	8"	14"
72"	86"	7"	8"	8"	14"
78"	93"	7.5"	8"	8"	14"
84"	100"	8"	8"	8"	14"

ROUND MANHOLE RFC-465C

NOT TO SCALE

SPECIAL 1 = 48" ø

NOTE:
HS20 Roadway Loading Catch Basin Cover Slab of Precast Reinforced Concrete with Rectangular Opening.

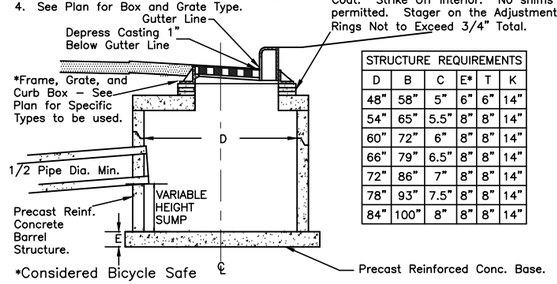


SECTION A-A

PLAN OF COVER SLAB

Note:
1. Steps needed for structure height greater than 4'.
2. Cover Slab to Rest on Bed of Mortar on Full Thickness of Structure Walls, not to Rest on Pipe Tongue or Groove.
3. Location of Structure as Shown in Plans.
4. See Plan for Box and Grate Type.

Adjusting Rings, 2 Min., 3 Max., Full 3/8" Bed of Mortar Between Rings. Plaster Exterior Only with 2" Min. Thick Coat. Strike Off Interior. No shims permitted. Stager on the Adjustment Rings Not to Exceed 3/4" Total.



SECTIONAL VIEW

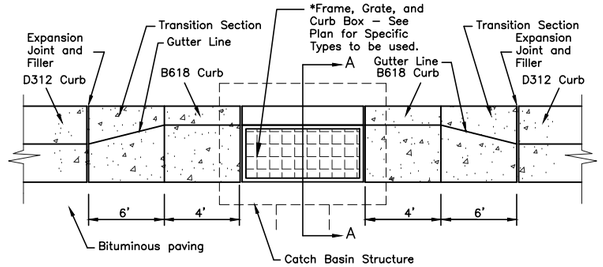
MnDOT Spec. ref. 2506, Detail ref. 4011, 4020, 4022

STRUCTURE REQUIREMENTS					
D	B	C	E*	T	K
48"	58"	5"	6"	6"	14"
54"	65"	5.5"	8"	8"	14"
60"	72"	6"	8"	8"	14"
66"	79"	6.5"	8"	8"	14"
72"	86"	7"	8"	8"	14"
78"	93"	7.5"	8"	8"	14"
84"	100"	8"	8"	8"	14"

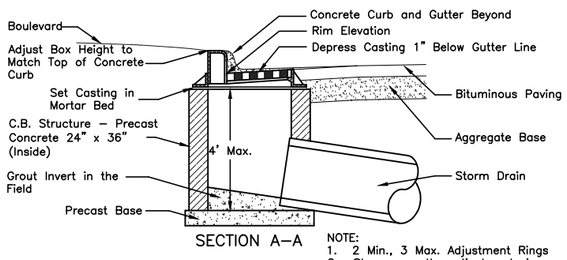
RECTANGULAR INLET
FOR ROUND MANHOLE RFC-465A3

NOT TO SCALE

SPECIAL 2 = 60" ø



CATCH BASIN PLAN



SECTION A-A

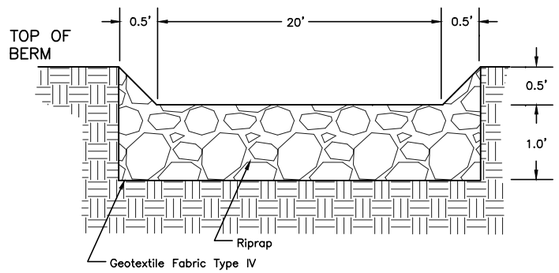
NOTE:
1. 2 Min., 3 Max. Adjustment Rings
2. Stagger on the adjustment rings not to exceed 3/4 inch total.

RECTANGULAR CATCH BASIN RFC-459B

NOT TO SCALE

SPECIAL

ROCK CHANNEL



Note:
Permanent erosion control fabric to extend from NWL to 5' past toe of downstream slope.

ROCK CHANNEL RFC-852A1

NOT TO SCALE

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:
CENTURYLINK (763) 712-5017
CENTERPOINT ENERGY (763) 323-2760
COMCAST (952) 607-4078
CONNEXUS ENERGY (763) 323-4268
XCEL ENERGY (612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

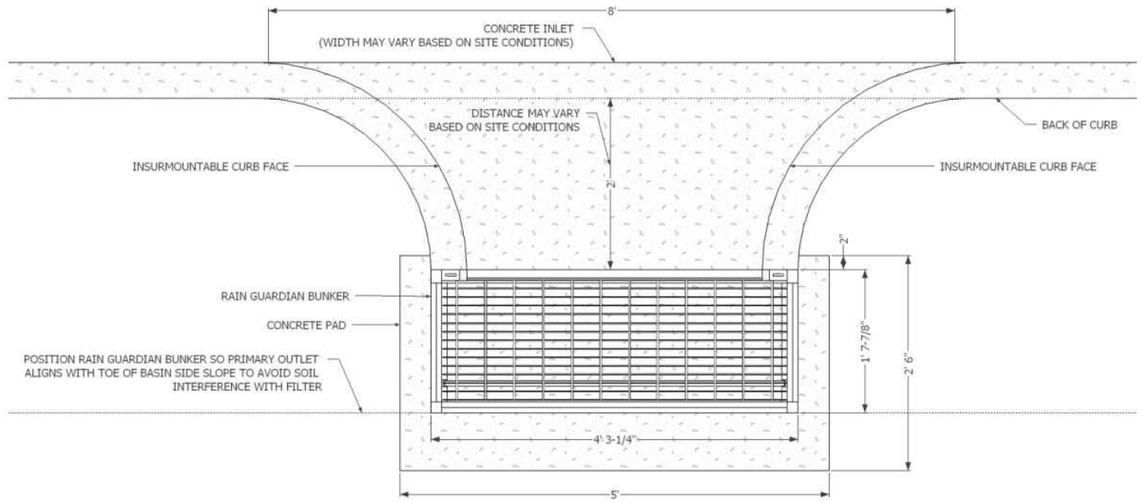
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krueger
DATE 6/29/2022 REG. NO. 48768

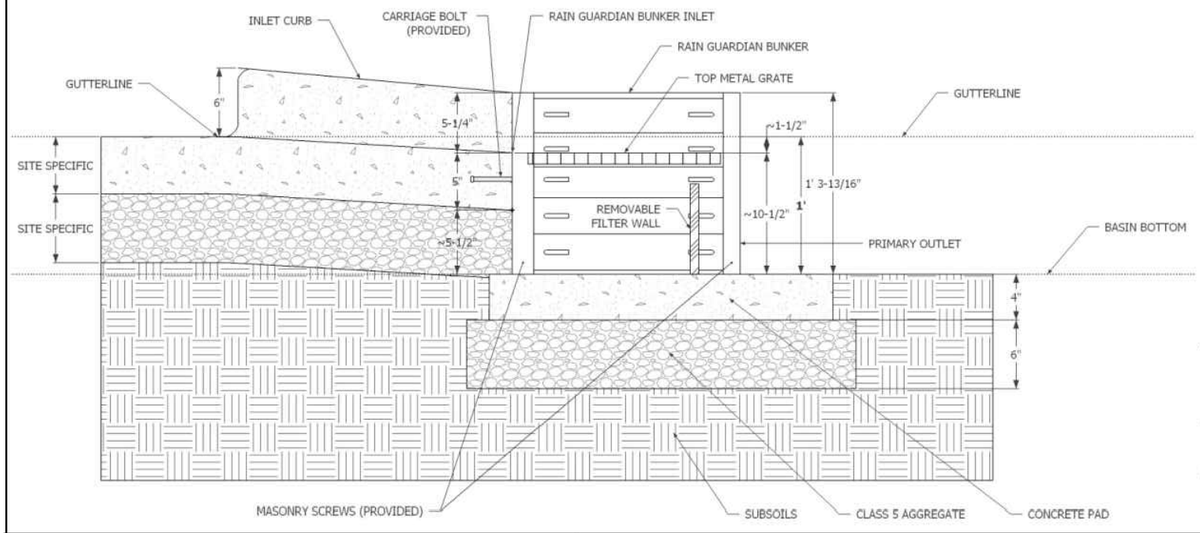
RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
DETAILS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2105 DETAIL 2
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 6 OF 51
FILE: 34-2-118



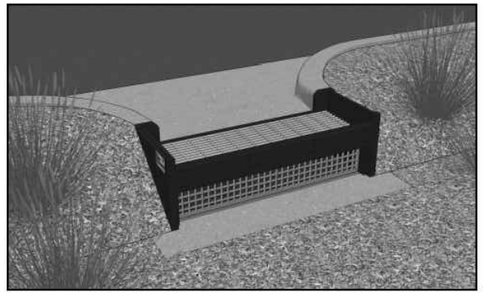


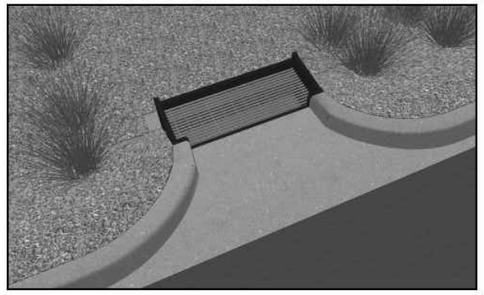
PLAN VIEW NOTES

1. INLET WIDTH AND DISTANCE BETWEEN BACK OF CURB AND RAIN GUARDIAN BUNKER MAY VARY WITH SITE CONDITIONS. INSTALLATION FLUSH WITH THE BACK OF THE CURB CAN ALSO BE COMPLETED WITH THE RAIN GUARDIAN BUNKER.

2. CONCRETE PAD EXTENDS BEYOND THE FILTER WALL OF THE RAIN GUARDIAN BUNKER TO SERVE AS A SPLASH DISSIPATOR.

INSTALLED VIEWS





CROSS-SECTION VIEW NOTES

1. THE TOP OF THE CLASS 5 BASE (COMPACTED TO 95% STANDARD PROCTOR) IS PRECISELY 1'4" BELOW THE GUTTERLINE ELEVATION.

2. THE TOP OF THE CONCRETE PAD IS PRECISELY 1' BELOW THE GUTTERLINE.

INSTALLATION NOTES

1. INSTALL THE CONCRETE PAD WITH A 1' 10" OFFSET FROM THE BACK OF THE CURB TO ACCOMMODATE THE CONCRETE INLET. THIS DISTANCE MAY VARY BASED ON SITE CONDITIONS, BUT CONSIDERATIONS SHOULD INCLUDE SLOPE OF THE INLET AND BASIN SIDE SLOPES ADJACENT TO THE RAIN GUARDIAN BUNKER. POSITION RAIN GUARDIAN BUNKER SO PRIMARY OUTLET ALIGNS WITH TOE OF BASIN SIDE SLOPE TO AVOID SOIL INTERFERENCE WITH REMOVABLE FILTER WALL. THE CONCRETE PAD SHOULD BE REINFORCED WITH REBAR.

2. EXCAVATE 1' 10" BELOW THE GUTTERLINE ELEVATION (I.E. THE BIORETENTION OVERFLOW ELEVATION) TO ACCOMMODATE THE 1' PONDING DEPTH, 6" CLASS 5 AGGREGATE, AND 4" CONCRETE PAD TO WHICH THE RAIN GUARDIAN BUNKER WILL BE SECURED. THEREFORE, THE TOP OF THE FINISHED CONCRETE PAD IS PRECISELY 1' BELOW THE GUTTERLINE ELEVATION. THE TOP OF THE RAIN GUARDIAN BUNKER METAL GRATE WILL BE 10-1/2" ABOVE THE TOP OF THE CONCRETE PAD AND 1-1/2" BELOW THE GUTTERLINE ELEVATION TO ACCOMMODATE A SLOPED INLET FROM THE GUTTER TO THE RAIN GUARDIAN BUNKER.

3. THE RAIN GUARDIAN BUNKER SHOULD BE POSITIONED 2" FROM THE EDGE OF THE CONCRETE PAD CLOSEST TO THE BACK OF THE CURB. THEREFORE, THE RAIN GUARDIAN BUNKER WILL BE 2' FROM THE BACK OF THE CURB.

4. USING THE PILOT HOLE IN EACH OF THE FOUR CORNER POSTS, PREDRILL 5/32" HOLES INTO THE CONCRETE PAD WITH A 4-1/2" MASONRY BIT AND HAMMER DRILL.

5. SECURE RAIN GUARDIAN BUNKER TO CONCRETE PAD WITH FOUR 3/16" X 2-3/4" MASONRY SCREWS (PROVIDED).

6. INSTALL FRAMING FOR INLET BETWEEN RAIN GUARDIAN BUNKER AND BACK OF CURB. TOP ELEVATIONS OF THE FRAMING SHOULD MATCH THE TOP OF THE CURB ON THE STREET SIDE AND THE TOP OF THE RAIN GUARDIAN BUNKER ON THE BIORETENTION SIDE.

7. WHEN POURING THE CONCRETE INLET, ENSURE THE CARRIAGE BOLTS ON THE RAIN GUARDIAN BUNKER ARE SURROUNDED BY AT LEAST 2" OF CONCRETE ON ALL SIDES.

8. SIDE CURBS OF THE POURED INLET MUST HAVE AN INSURMOUNTABLE PROFILE TO PREVENT WATER FLOW FROM OVERTOPPING THE DOWNSTREAM SIDE OF THE INLET.

9. WRAP CABLE THROUGH TOP METAL GRATE AND SECURE WITH PROVIDED CLAMP. ENSURE SUFFICIENT SLACK EXISTS IN CABLE TO ALLOW FOR GRATE REMOVAL AND PLACEMENT IN CONCRETE INLET DURING CLEANING. REMOVABLE FILTER WALL SHOULD BE INSTALLED WITH FILTER FABRIC FACING THE RAIN GUARDIAN BUNKER INLET.

RAIN GUARDIAN
U.S. PATENT NO. 8,501,016

PRETREATMENT FOR BIORETENTION

Rain Gardens • Swales • Filtration Basins • Infiltration Basins

www.RainGuardian.biz

RAIN GUARDIAN BUNKER
PRETREATMENT CHAMBER
BIORETENTION PONDING DEPTH: 1'
TYPICAL DETAIL

REVISION HISTORY

REV	BY	DATE	DESCRIPTION
A	MDH	12/1/15	BUNKER—1'
SCALE		VARIABLE	
U.S. PATENT		8,501,016	

ANOKA CONSERVATION DISTRICT

Anoka Conservation District
1318 McKay Dr. NE, Suite 300
Ham Lake, MN 55304
763-434-2030

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
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DATE	REVISION HISTORY
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Dan Kreger
DATE 6/29/2022 REG. NO. 48768

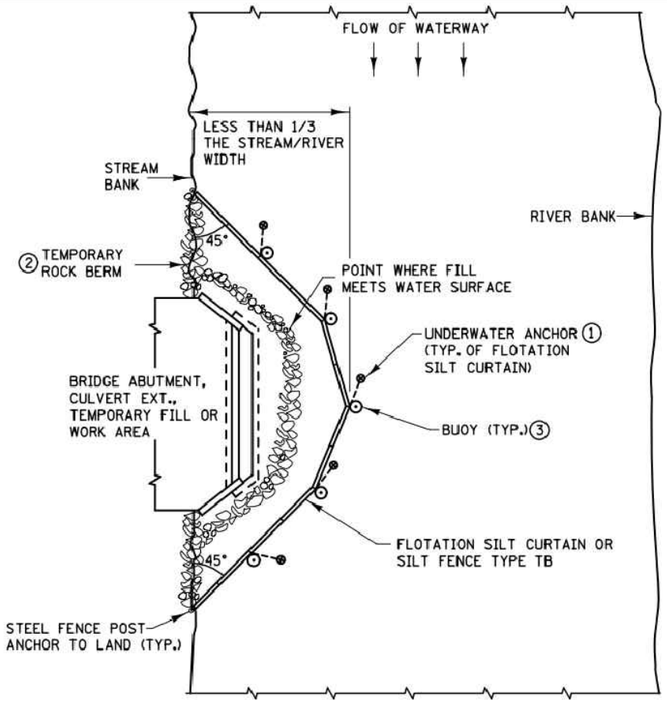
RFC ENGINEERING, INC.
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

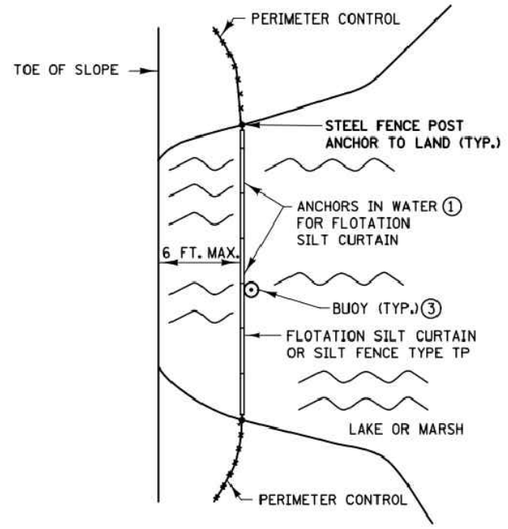
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
DETAILS

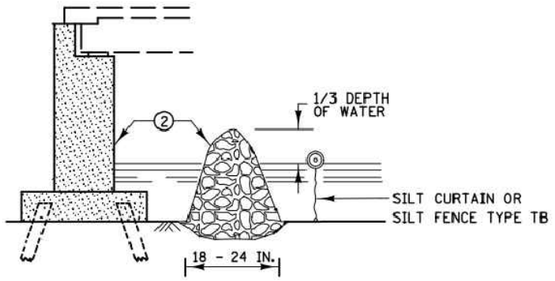
DWG: 2105 DETAIL 3
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 7 OF 51
FILE: 34-2-119



PLAN VIEW FOR STREAM ⑤



PLAN VIEW FOR LAKE OR MARSH ⑤



TEMPORARY ROCK BERM
FOR SEDIMENT CONTROL

INSTALLATION GUIDELINES
SILT FENCE TYPE TB

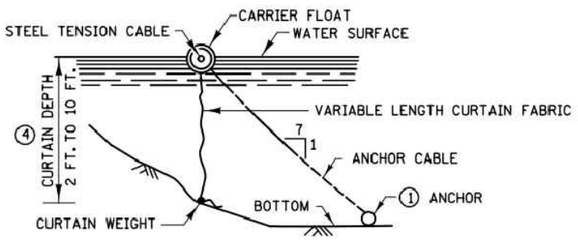
MINIMUM WATER DEPTH: 1 FT.
MAXIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.

INSTALLATION GUIDELINES ④
FLOTATION SILT CURTAIN
TYPE: STILL WATER

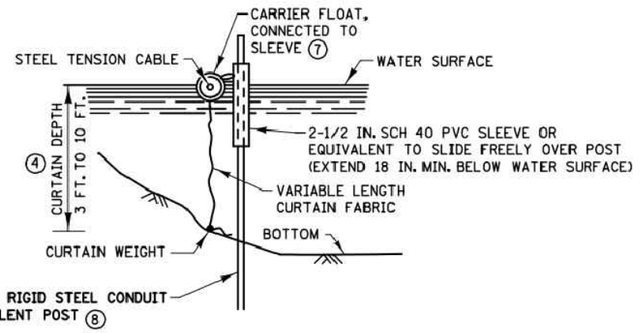
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER DEPTH: 10 FT.
MAXIMUM WATER VELOCITY: 2 FT./SEC.
MAXIMUM WAVE HEIGHT: 1 FT

INSTALLATION GUIDELINES ④
FLOTATION SILT CURTAIN
TYPE: MOVING WATER

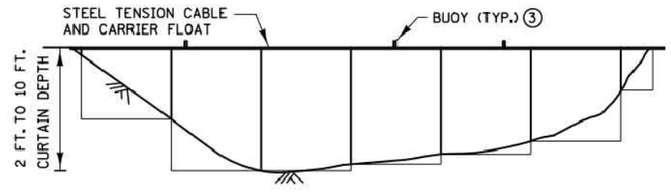
MINIMUM WATER DEPTH: 3 FT.
MAXIMUM WATER DEPTH: 10 FT.
MAXIMUM WATER VELOCITY: 5 FT./SEC.
MAXIMUM WAVE HEIGHT: 2 FT.



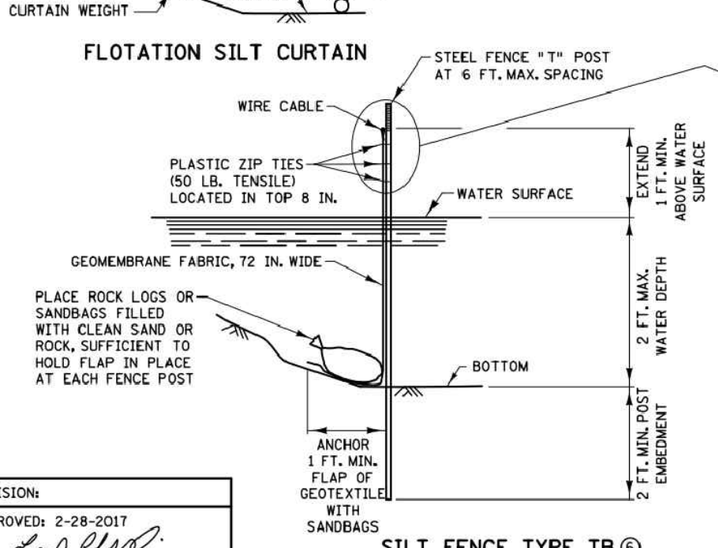
FLOTATION SILT CURTAIN



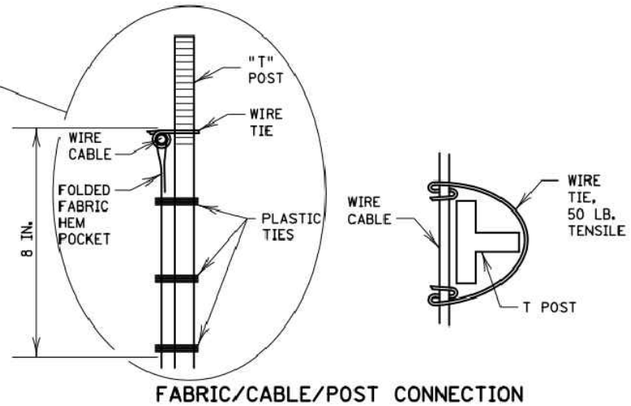
ALTERNATE FLOTATION SILT CURTAIN



FRONT VIEW FOR FLOTATION SILT CURTAIN



SILT FENCE TYPE TB ⑥



FABRIC/CABLE/POST CONNECTION

NOTES:

SEE SPECS. 2573, 3886, 3887 & 3893.

① FOR ANCHOR SPACING AND WEIGHT REQUIREMENTS, SEE SPEC. 2573.

② IN AREAS WHERE THE PLAN CALLS FOR RIPRAP AT A BRIDGE, CULVERT, OR SLOPE, A TEMPORARY ROCK BERM CONSTRUCTED FROM THE RIPRAP CAN BE USED TO PROVIDE ADDITIONAL PROTECTION. WHEN THE WORK IS COMPLETE THE RIPRAP CAN THEN BE MOVED TO THE PERMANENT LOCATION INDICATED IN THE PLANS. THE TEMPORARY ROCK BERM IS INCIDENTAL.

③ ON U.S. COAST GUARD OR OTHER MOTORIZED WATERWAYS, BUOYS ARE REQUIRED TO MARK THE ENDS AND SPECIAL AREAS FOR VISIBILITY. PLACE BUOYS AS REQUIRED FOR NAVIGATIONAL PURPOSES.

④ MINIMUM WATER DEPTH APPLIES TO THE DEEPEST POINT ALONG THE FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB FOR DETERMINING APPLICABILITY OF FLOTATION SILT CURTAIN OR SILT FENCE TYPE TB.

⑤ SILT CURTAIN SHOULD BE REMOVED WHEN THE AREA CONTRIBUTING DIRECT RUNOFF HAS BEEN TEMPORARILY OR PERMANENTLY STABILIZED. SILT CURTAIN SHOULD ALSO BE REMOVED BEFORE WINTER IF ICE UP OR ICE FLOW IS ANTICIPATED.

⑥ EMBED POST INTO BOTTOM A MINIMUM OF 40% OF THE WATER DEPTH (INCLUDING WAVE HEIGHT), BUT IN NO CASE SHALL EMBEDMENT BE LESS THAN 2 FEET.

⑦ ANCHOR FLOAT MUST BE CONNECTED SECURELY TO SLEEVE WITH A MINIMUM TENSILE STRENGTH OF 100 LBS. CONNECTION METHOD MUST ALLOW FOR SLEEVE TO MOVE FREELY ON POST.

⑧ PROVIDE SUFFICIENT NUMBER OF POST ANCHORS TO MAINTAIN SILT CURTAIN POSITION.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

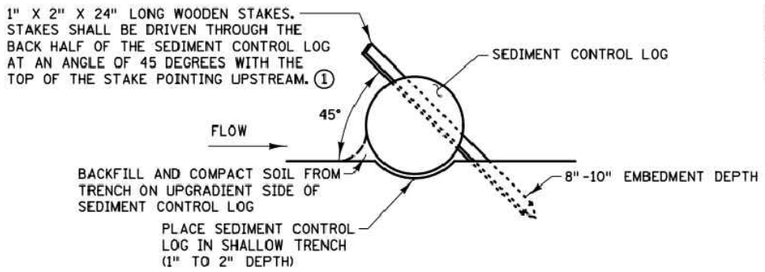
MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 1 OF 8

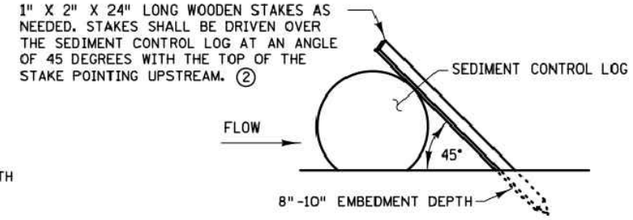
APPROVED: 2-28-2017
REVISED:
STATE DESIGN ENGINEER

TEMPORARY SEDIMENT CONTROL
SILT CURTAIN OR SILT FENCE TYPE TB

STATE PROJ. NO. (T.H.) SHEET NO. 8 OF 51 SHEETS

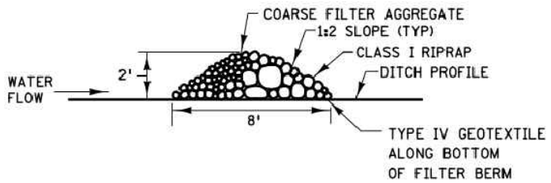


TYPES: STRAW, WOOD FIBER, OR COIR

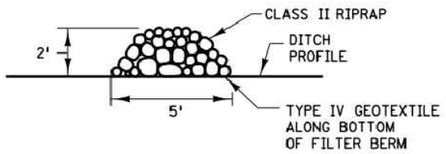


TYPES: WOOD CHIP, COMPOST, OR ROCK

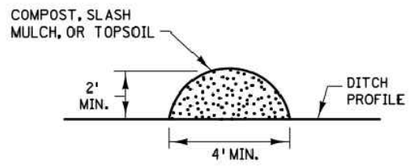
SEDIMENT CONTROL LOGS



TYPE 3 (ROCK WEEPER)

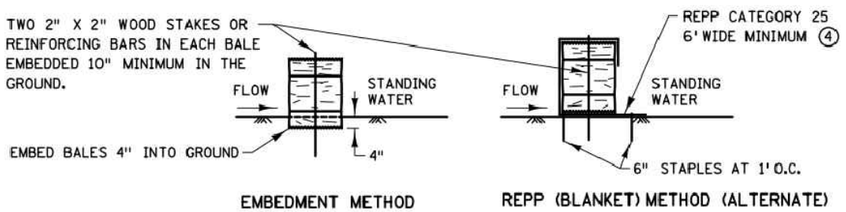


TYPE 5 (ROCK)



TYPE 1 (COMPOST), TYPE 2 (SLASH MULCH), OR TYPE 4 (TOPSOIL)

FILTER BERMS



EMBEDMENT METHOD

REPP (BLANKET) METHOD (ALTERNATE)

BALE BARRIERS(3)

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3149, 3874, 3882, 3885, 3886, AND 3897.

(1) SPACE BETWEEN STAKES SHALL BE A MAXIMUM OF 1' FOR DITCH CHECKS OR 2' FOR OTHER APPLICATIONS.

(2) PLACE STAKES AS NEEDED TO PREVENT MOVEMENT OF SEDIMENT CONTROL LOGS PLACED ON SLOPES OR AS NEEDED DUE TO OTHER FACTORS. STAKES SHALL BE INCIDENTAL.

(3) TO BE USED FOR CRITICAL PERIMETER CONTROL AREAS WHERE STANDING WATER OCCURS (6" MAXIMUM DEPTH). BALES SHALL CONSIST OF TYPE 1 MULCH OF APPROXIMATELY 14" X 18" X 36" LONG. BALES SHALL BE PLACED ON EDGE AND BUTTED TIGHT TO ADJACENT BALES.

(4) INSTEAD OF TRENCHING, PLACE BALE ON THE REPP (BLANKET) AND WRAP BLANKET AROUND THE BALE. PLACE STAKE THROUGH BALE AND BLANKET.

REVISION:

APPROVED: JANUARY 8, 2020
MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 2 OF 8

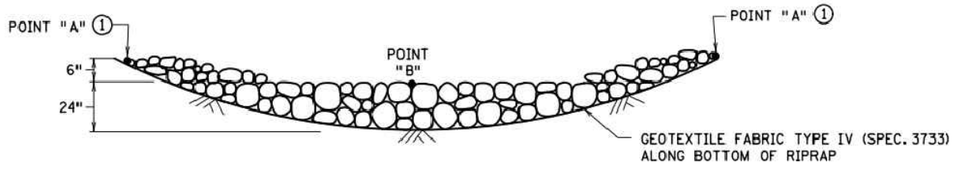
APPROVED: 1-8-2020
REVISED:

THOMAS STYRBICKI
STATE DESIGN ENGINEER

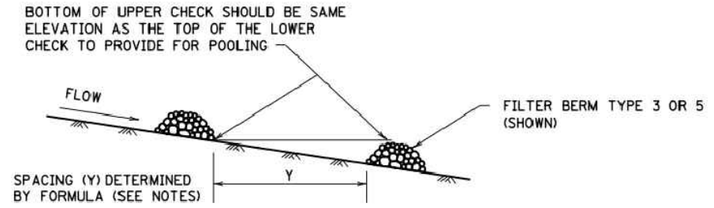
TEMPORARY SEDIMENT CONTROL

FILTER BERMS, SEDIMENT CONTROL LOGS, AND BALE BARRIERS

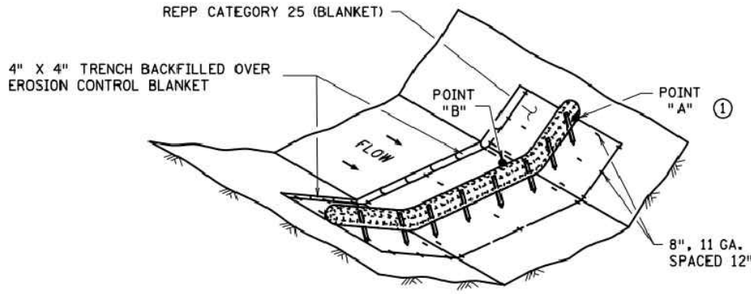
STATE PROJ. NO. (T.H.) SHEET NO. 9 OF 51 SHEETS

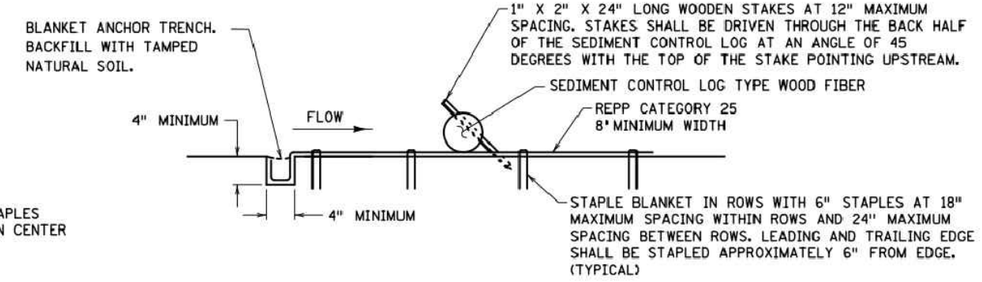


ROCK DITCH CHECKS
FILTER BERMS TYPE 3 (ROCK WEEPER) OR FILTER TYPE 5 (ROCK) ③
FOR USE ON ROUGH-GRADED AREAS
ONLY FOR USE OUTSIDE CLEAR ZONE ②

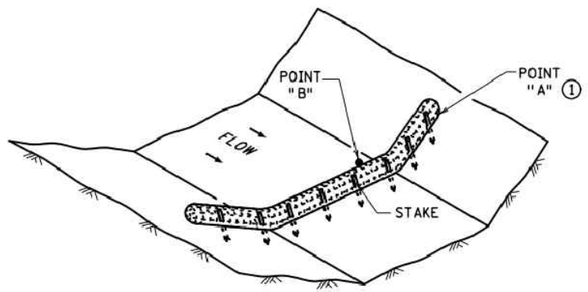


DITCH CHECK SPACING
FOR ALL FILTER BERM TYPES





SEDIMENT CONTROL LOG TYPE REPP (BLANKET) SYSTEM ④



SEDIMENT CONTROL LOG TYPE WOOD FIBER, OR TYPE COMPOST ⑤
FOR USE ON ROUGH GRADED AREAS

NOTES:

REPP = ROLLED EROSION PREVENTION PRODUCT.

SEE SPECS. 2573, 3601, 3733, 3885, 3886 & 3889.

FOR DITCH CHECKS, PLACE SEDIMENT CONTROL LOG PERPENDICULAR TO FLOW AND IN A CRESCENT SHAPE WITH THE ENDS FACING UPSTREAM.

APPROXIMATE SPACING BETWEEN EACH DITCH CHECK SHOULD BE DETERMINED FROM THE FOLLOWING SPACING FORMULA:

$$\text{APPROXIMATE SPACING OF DITCH CHECKS (FT.)} = Y = \frac{\text{DITCH CHECK HEIGHT (FT.)}}{\text{\% CHANNEL SLOPE}} \times 100$$

① POINT "A" MUST BE A MINIMUM OF 6" HIGHER THAN POINT "B" TO ENSURE THAT WATER FLOWS OVER THE DIKE AND NOT AROUND THE ENDS.

② ROCK DITCH CHECKS PLACED WITHIN THE CLEAR ZONE ARE TO BE 18" OR LESS IN HEIGHT. A 1:6 APPROACH AND DEPARTURE SLOPE SHALL BE PROVIDED.

③ DITCH GRADE 3% - 5%, MAX. FLOW VELOCITY 12 FT./SEC.

④ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 4.5 FT./SEC.

⑤ DITCH GRADE 1.5% - 3%, MAX. FLOW VELOCITY 1.5 FT./SEC.

REVISION:

APPROVED: JANUARY 8, 2020
MARNI KARNOWSKI
CHIEF ENVIRONMENTAL OFFICER

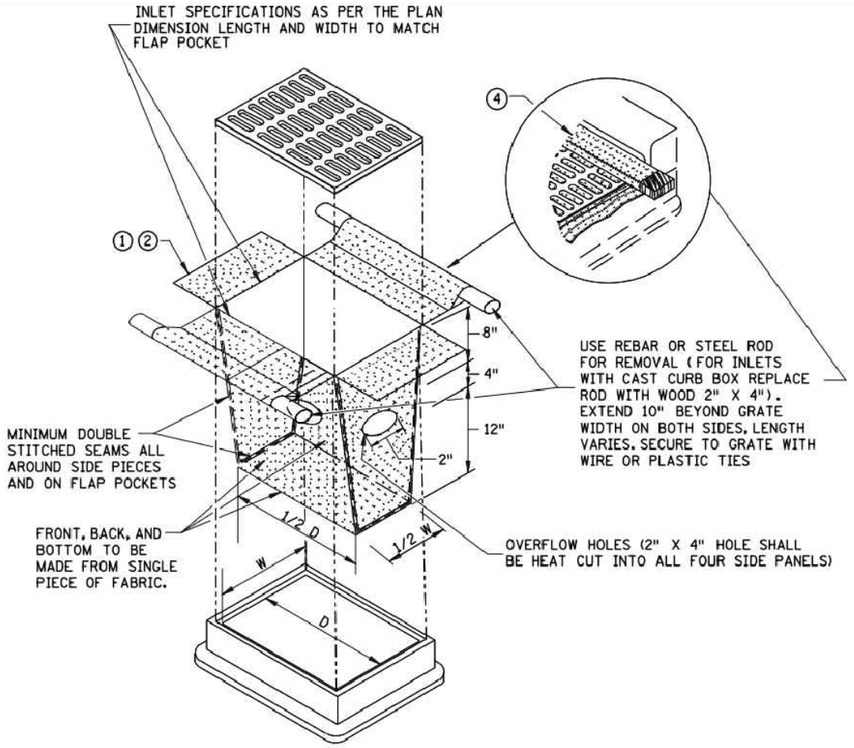
MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 3 OF 8

APPROVED: 1-8-2020
REVISED:
THOMAS STYRBICKI
STATE DESIGN ENGINEER

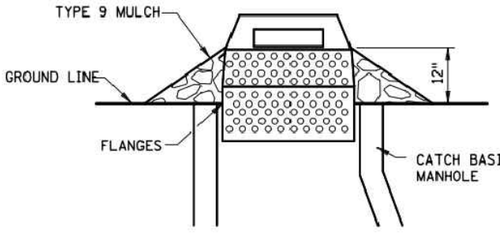
TEMPORARY SEDIMENT CONTROL
DITCH CHECK

STATE PROJ. NO. (T.H.) SHEET NO. 10 OF 51 SHEETS



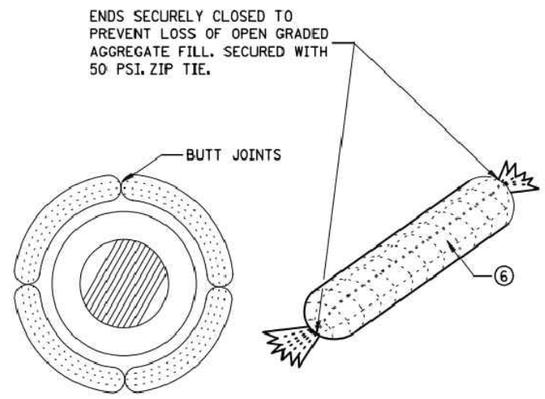
FILTER BAG INSERT ③

(CAN BE INSTALLED IN ANY INLET TYPE WITH OR WITHOUT A CURB BOX)

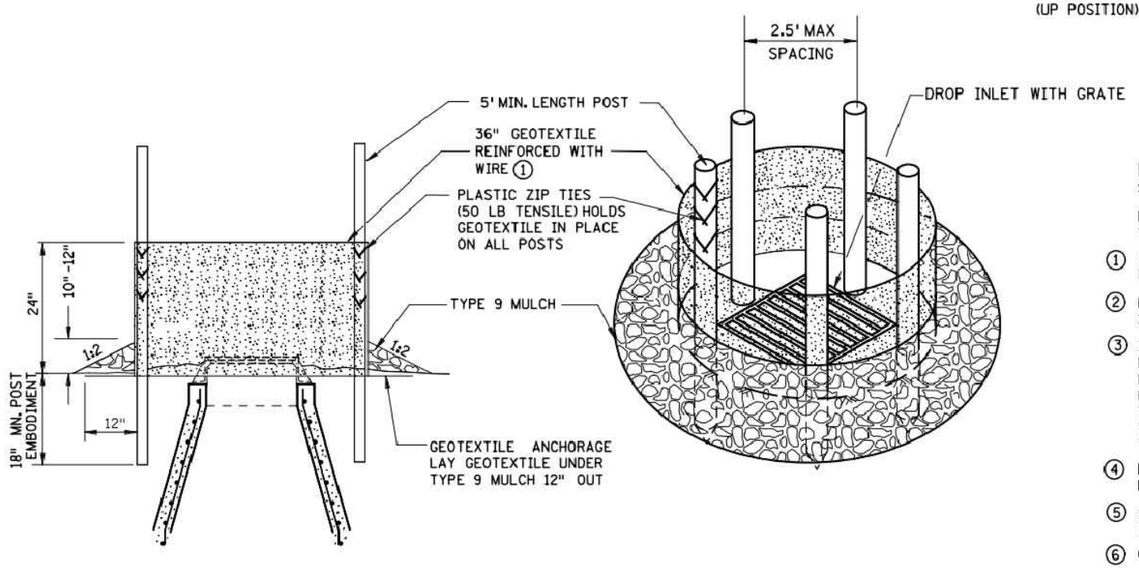


SEDIMENT CONTROL INLET HAT

NOTE:
THE SEDIMENT CONTROL BARRIER SHALL BE A METAL OR PLASTIC/POLYETHYLENE RISER SIZED TO FIT INSIDE THE CATCH BASIN/MANHOLE; HAVE PERFORATIONS TO ALLOW FOR WATER INFILTRATION; HAVE AN OVERFLOW OPENING, FLANGES AND A LID/COVER.

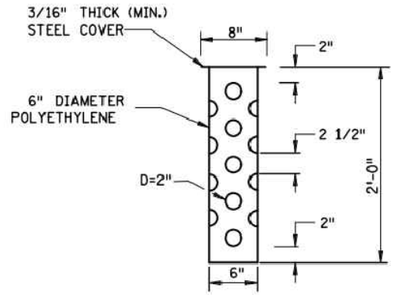


ROCK LOG/COMPOST LOG

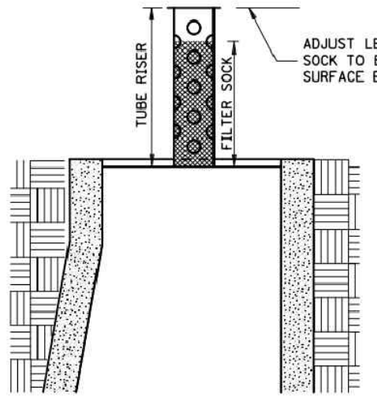


SILT FENCE RING AND ROCK FILTER BERM

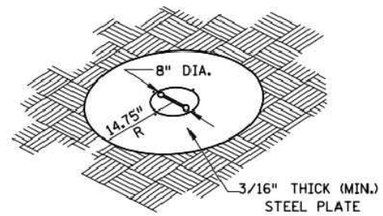
USE WHERE INLET DRAINS IN AN AREA WITH SLOPES AT 1:3 or LESS



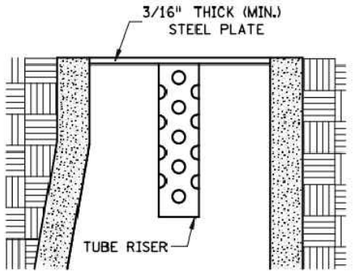
TUBE RISER



SECTION
(UP POSITION)



PERSPECTIVE VIEW



SECTION
(DOWN POSITION)

POP-UP HEAD

NOTES:
SEE SPECS. 2573, 3137, & 3886.

DEVICES MUST BE ADJUSTED ACCORDINGLY AS TO NOT CAUSE FLOODING ON ROADWAY THAT WOULD IMPEED TRAFFIC FLOW.

(1) ALL GEOTEXTILE USED FOR INLET PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886.

(2) FINISHED SIZE, INCLUDING POCKETS WHERE REQUIRED SHALL EXTEND A MINIMUM OF 10 INCHES AROUND THE PERIMETER TO FACILITATE MAINTENANCE OR REMOVAL.

(3) INSTALLATION NOTES:
DO NOT PLACE FILTER BAG INSERT IN INLETS SHALLOWER THAN 30 INCHES, MEASURED FROM THE BOTTOM OF THE INLET TO THE TOP OF THE GRATE. THE PLACED BAG SHALL HAVE A MINIMUM SIDE CLEARANCE OF 3 INCHES BETWEEN THE INLET WALLS AND THE BAG, MEASURED AT THE BOTTOM OF THE OVERFLOW HOLES. WHERE NECESSARY THE CONTRACTOR SHALL CLINCH THE BAG, USING PLASTIC ZIP TIES, TO ACHIEVE THE 3 INCH SIDE CLEARANCE.

(4) FLAP POCKETS SHALL BE LARGE ENOUGH TO ACCEPT WOOD 2 INCH X 4 INCH OR USE A ROCK SOCK OR SAND BAGS IN PLACE OF THE FLAP POCKETS.

(5) SOCK HEIGHT MUST NOT BE SO HIGH AS TO SLOW DOWN WATER FILTRATION TO CAUSE FLOODING OF THE ROADWAY.

(6) GEOTEXTILE SOCK BETWEEN 4-10 FEET LONG AND 4-6 INCH DIAMETER. SEAM TO BE JOINED BY TWO ROWS OF STITCHING WITH A PLASTIC MESH BACKING OR PROVIDE A HEAT BONDED SEAM (OR APPROVED EQUIVALENT). FILL ROCK LOG WITH OPEN GRADED AGGREGATE CONSISTING OF SOUND DURABLE PARTICLES OF COARSE AGGREGATE CONFORMING TO SPEC. 3137 TABLE 3137-1; CA-3 GRADATION.

REVISION:

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CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

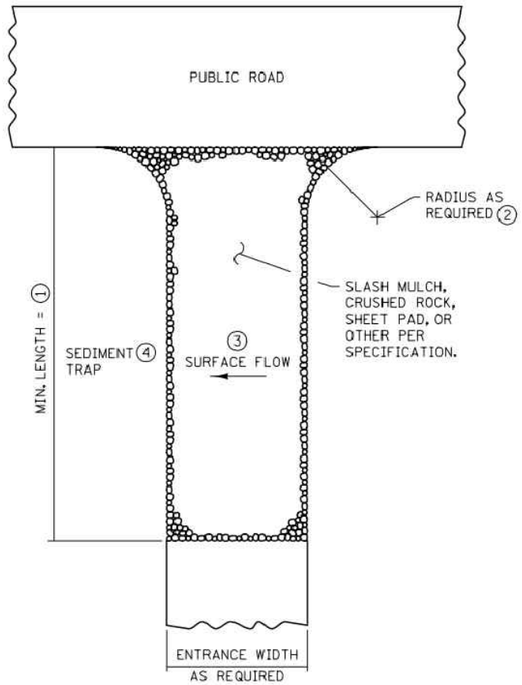
STANDARD PLAN 5-297.405 | 4 OF 8

APPROVED: 2-28-2017
REVISED:
STATE DESIGN ENGINEER

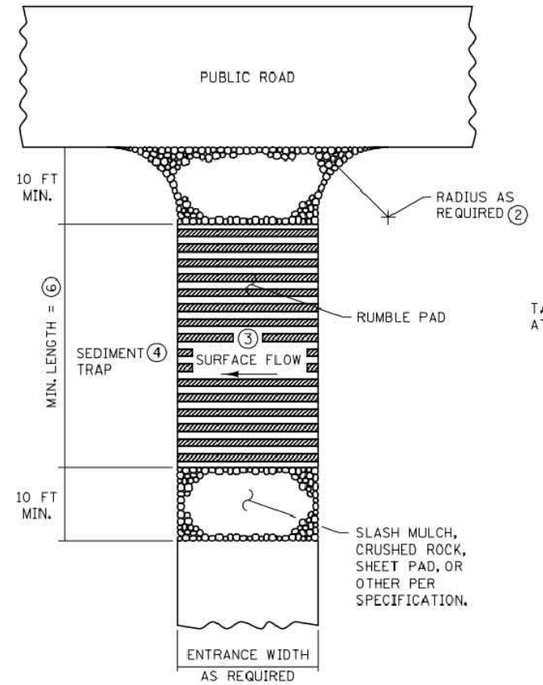
TEMPORARY SEDIMENT CONTROL

STORM DRAIN INLET PROTECTION

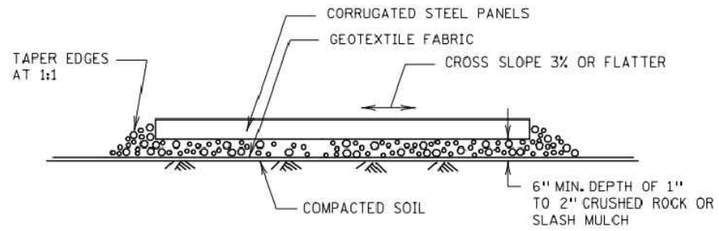
STATE PROJ. NO. (T.H.) SHEET NO. 11 OF 51 SHEETS



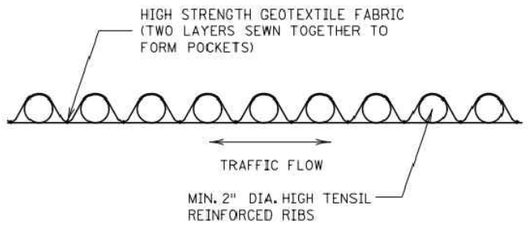
SLASH MULCH, CRUSHED ROCK, OR SHEET PAD CONSTRUCTION EXIT ⑤⑦



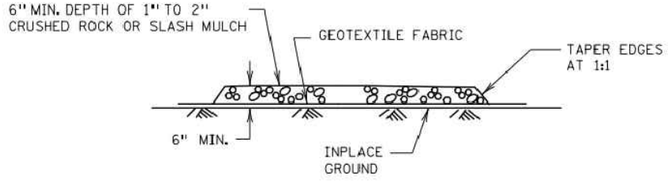
RUMBLE PAD CONSTRUCTION EXIT ⑤⑦



RUMBLE PAD



SHEET PAD



SLASH MULCH OR CRUSHED ROCK

NOTES:

SEE SPECS. 2573 & 3882.

(1) MINIMUM LENGTH SHALL BE THE GREATER OF 50 FEET OR A LENGTH SUFFICIENT TO ALLOW A MINIMUM OF 5 TIRE ROTATIONS ON THE PROVIDED PAD. MINIMUM LENGTH SHALL BE CALCULATED USING THE LARGEST TIRE WHICH WILL BE USED IN TYPICAL OPERATIONS.

(2) PROVIDE RADIUS OR WIDEN PAD SUFFICIENTLY TO PREVENT VEHICLE TIRES FROM TRACKING OFF OF PAD WHEN LEAVING SITE.

(3) IF RUNOFF FROM DISTURBED AREAS FLOWS TOWARD CONSTRUCTION EXITS, PREVENT RUNOFF FROM DRAINING DIRECTLY TO PUBLIC ROAD OVER CONSTRUCTION EXIT BY CROWNING THE EXIT OR SLOPING TO ONE SIDE. IF SURFACE GRADING IS INSUFFICIENT, PROVIDE OTHER MEANS OF INTERCEPTING RUNOFF.

(4) IF RUNOFF FROM CONSTRUCTION EXITS WILL DRAIN OFF OF PROJECT SITE, PROVIDE SEDIMENT TRAP WITH STABILIZED OVERFLOW.

(5) IF A TIRE WASH OFF IS REQUIRED THE CONSTRUCTION EXITS SHALL BE GRADED TO DRAIN THE WASH WATER TO A SEDIMENT TRAP.

(6) MINIMUM LENGTH OF RUMBLE PAD SHALL BE 20 FEET, OR AS REQUIRED TO REMOVE SEDIMENT FROM TIRES. IF SIGNIFICANT SEDIMENT IS TRACKED FROM THE SITE, THE RUMBLE PAD SHALL BE LENGTHENED OR THE DESIGN MODIFIED TO PROVIDE ADDITIONAL VIBRATION. WASH-OFF LENGTH SHALL BE AS REQUIRED TO EFFECTIVELY REMOVE CONSTRUCTION SEDIMENT FROM VEHICLE TIRES.

(7) MAINTENANCE OF CONSTRUCTION EXITS SHALL OCCUR WHEN THE EFFECTIVENESS OF SEDIMENT REMOVAL HAS BEEN REDUCED. MAINTENANCE SHALL CONSIST OF REMOVING SEDIMENT AND CLEANING THE MATERIALS OR PLACING ADDITIONAL MATERIAL (SLASH MULCH OR CRUSHED ROCK) OVER SEDIMENT FILLED MATERIAL TO RESTORE EFFECTIVENESS.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 5 OF 8

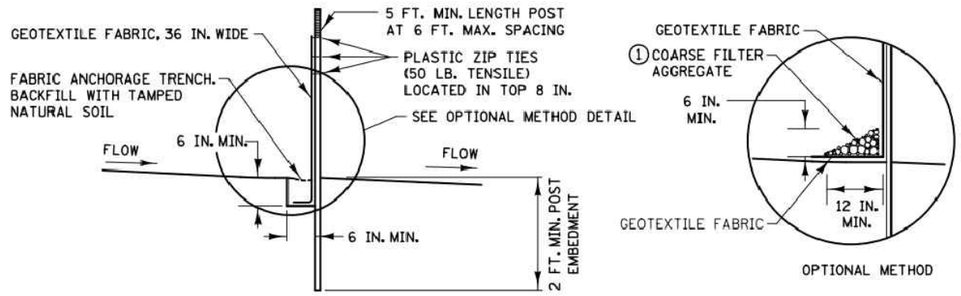
APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

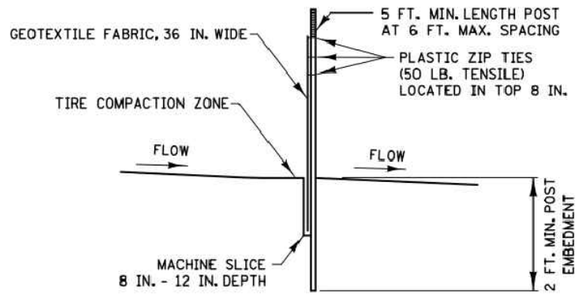
TEMPORARY SEDIMENT CONTROL

STABILIZED CONSTRUCTION EXIT

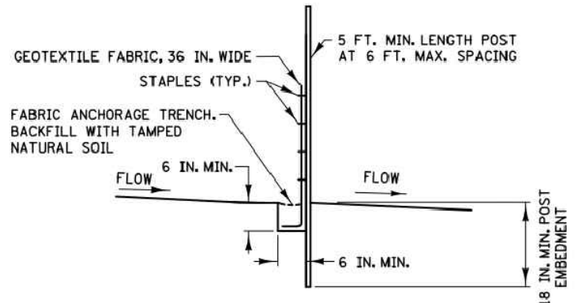
STATE PROJ. NO. (T.H.) SHEET NO. 12 OF 51 SHEETS



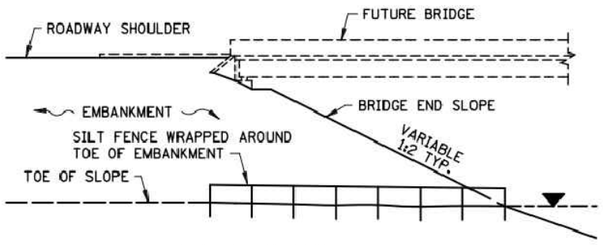
SILT FENCE TYPE HI ②
(HAND INSTALLED)



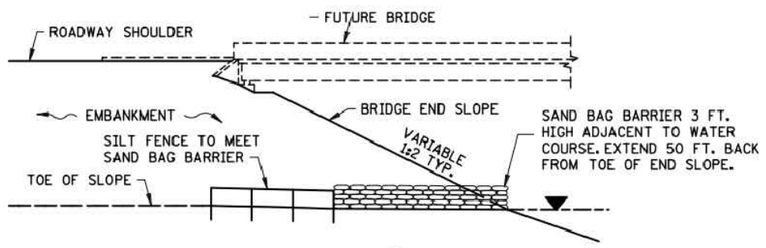
SILT FENCE TYPE MS ②
(MACHINE SLICED)



SILT FENCE TYPE PA ③
(PREASSEMBLED)

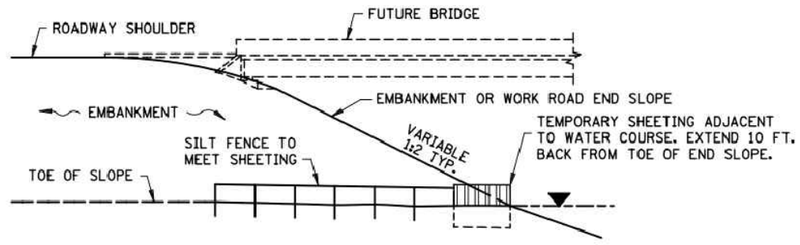


SILT FENCE ONLY ④

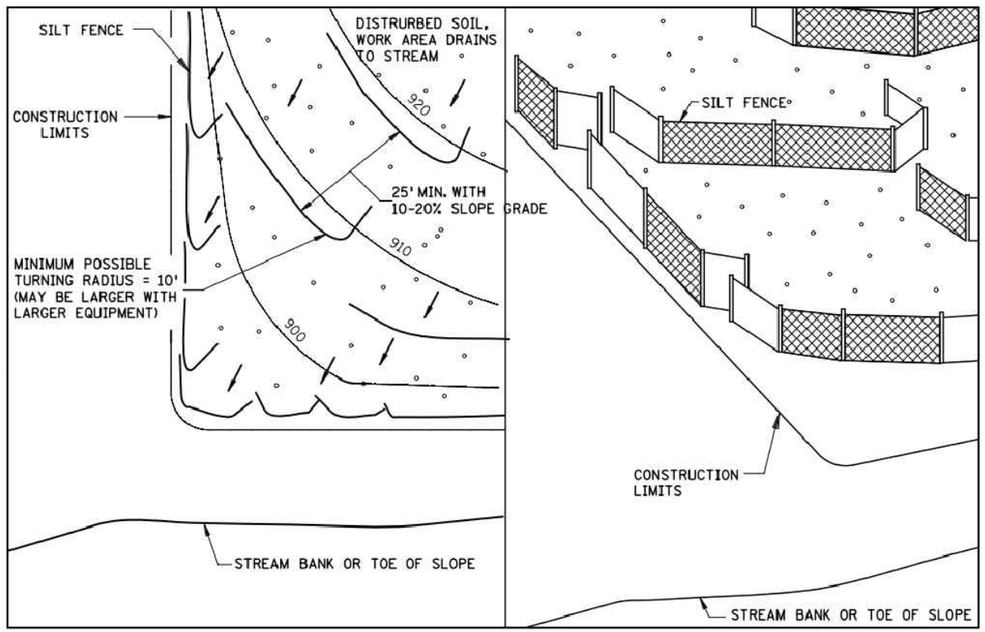


SILT FENCE WITH SAND BAGS ⑤

INSTALLATION AT BRIDGE EMBANKMENT ADJACENT TO WATER



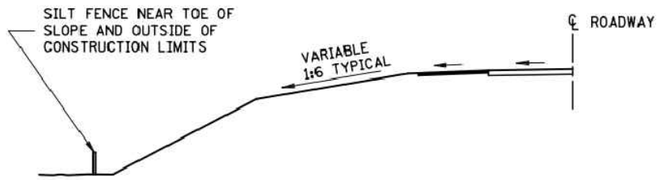
SILT FENCE WITH SHEETING ⑥



PLAN VIEW

PERSPECTIVE VIEW

J-HOOK INSTALLATION



LOCATION AT TOE OF ROADWAY EMBANKMENT

NOTES:

SEE SPECS. 2573, 3149 & 3886.

① COARSE FILTER AGGREGATE (SPEC. 3149) SHALL BE INCIDENTAL.

② TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 1 ACRE.

③ TO PROTECT AREAS FROM SHEET FLOW. MAXIMUM CONTRIBUTING AREA: 0.25 ACRE.

④ WATER COURSE FLOW VELOCITY: STANDING. CONTRIBUTING SLOPE AREA: 1./2 ACRE.

⑤ WATER COURSE FLOW VELOCITY: 1 TO 7 FT./SEC. CONTRIBUTING SLOPE AREA: 1. ACRE.

⑥ WATER COURSE FLOW VELOCITY: 8 TO 15 FT./SEC. CONTRIBUTING SLOPE AREA: 3 ACRES.

REVISION:

APPROVED: 2-28-2017
CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 6 OF 8

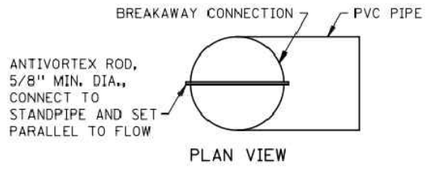
APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

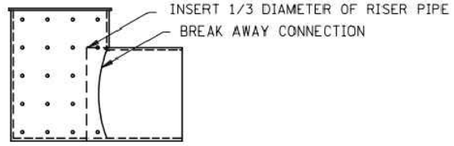
TEMPORARY SEDIMENT CONTROL

SILT FENCE

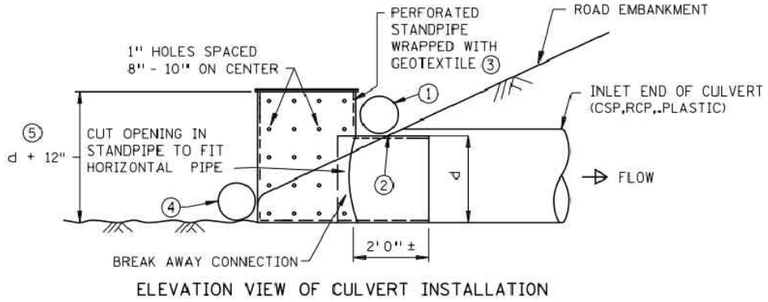
STATE PROJ. NO. (T.H.) SHEET NO. 13 OF 51 SHEETS



PLAN VIEW



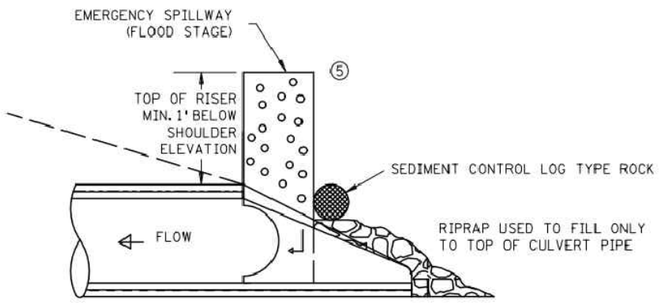
CULVERT STANDPIPE



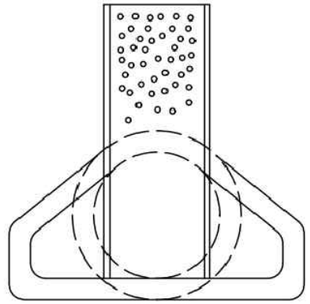
ELEVATION VIEW OF CULVERT INSTALLATION

CULVERT STANDPIPE INSERT (D-RISER)

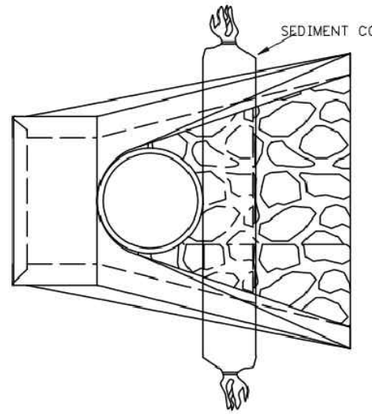
d= CULVERT SIZE: 12" - 36"



LONGITUDINAL SECTION



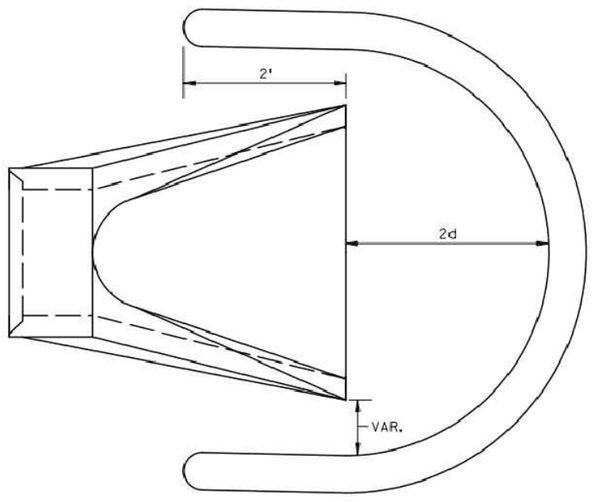
END VIEW



NOTE: SEDIMENT CONTROL LOG TYPE ROCK MAY BE WRAPPED AROUND RISER

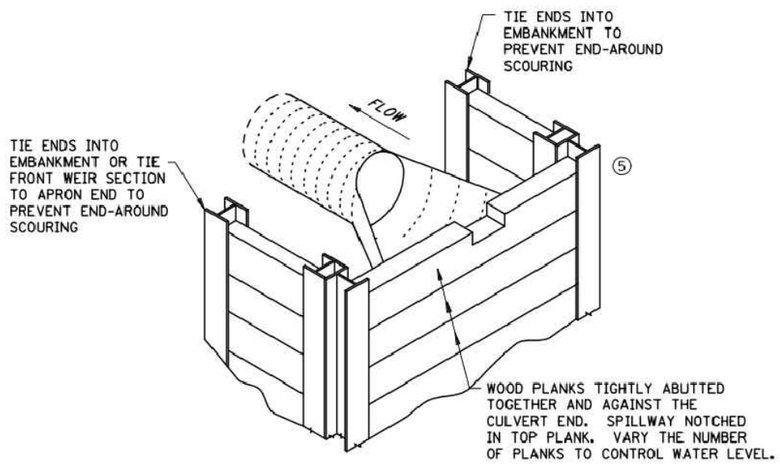
TOP VIEW

CULVERT STANDPIPE INSERT (D-RISER)



SEDIMENT CONTROL LOG WEIR
(COMPOST, WOOD CHIP, OR ROCK)

d = CULVERT SIZE: 12" -36"



WOOD PLANK WEIR

NOTES:

SEE SPECS. 2573, 3891 & 3893.

FOR USE WHEN TEMPORARY PONDING IS NEEDED IN DITCH SECTIONS FOR SEDIMENT CONTROL.

MANUFACTURED ALTERNATIVES LISTED ON MnDOT'S APPROVED PRODUCTS LIST MAY BE SUBSTITUTED AT NO ADDITIONAL COST.

① ROCK LOG OR SANDBAG TO HOLD STANDPIPE AND ACT AS A SEAL BETWEEN RISER PIPE AND CULVERT.

② PLACE CULVERT APRON AND SLIDE TEMPORARY STANDPIPE INTO CSP OR RCP CULVERT.

③ ALL GEOTEXTILE USED FOR CULVERT PROTECTION SHALL BE MONOFILAMENT IN BOTH DIRECTIONS, MEETING SPEC. 3886 FOR MACHINE SLICED.

④ ROCK LOG OR RIP RAP TO HOLD STANDPIPE AND ACT AS A FILTER BETWEEN RISER PIPE AND CULVERT.

⑤ HEIGHT OVERFLOW NOT TO CAUSE FLOODING OF ROAD OR ADJACENT PROPERTIES.

REVISION:

APPROVED: 2-28-2017

CHIEF ENVIRONMENTAL OFFICER

MINNESOTA DEPARTMENT OF TRANSPORTATION

STANDARD PLAN 5-297.405 | 8 OF 8

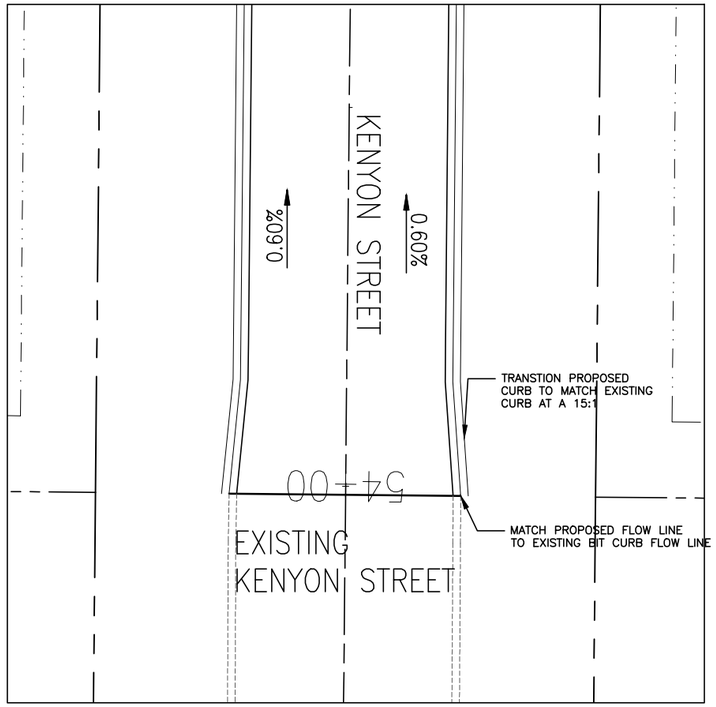
APPROVED: 2-28-2017
REVISED:

STATE DESIGN ENGINEER

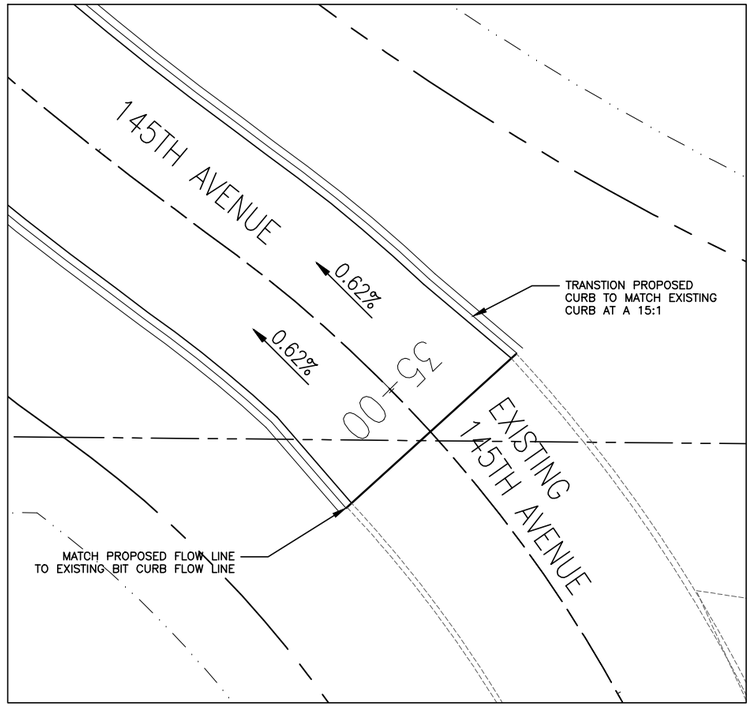
TEMPORARY SEDIMENT CONTROL

CULVERT END CONTROLS

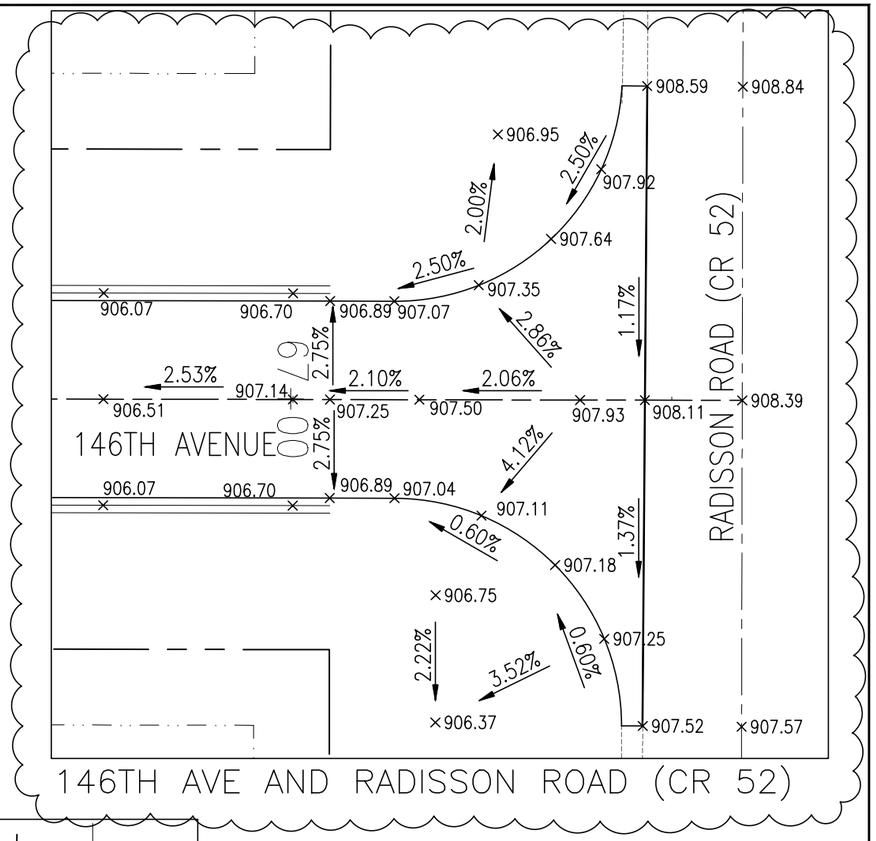
STATE PROJ. NO. (T.H.) SHEET NO. 14 OF 51 SHEETS



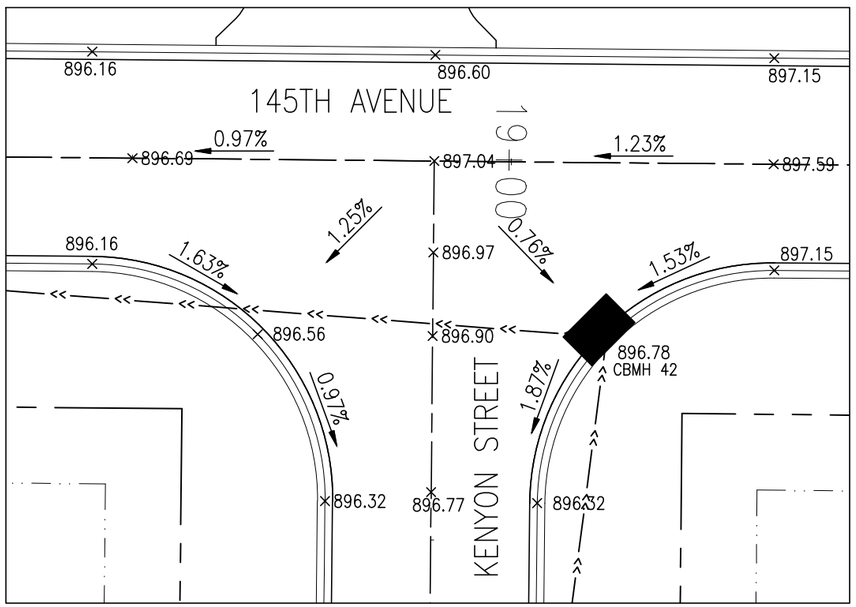
KENYON ST AND EXISTING KENYON ST



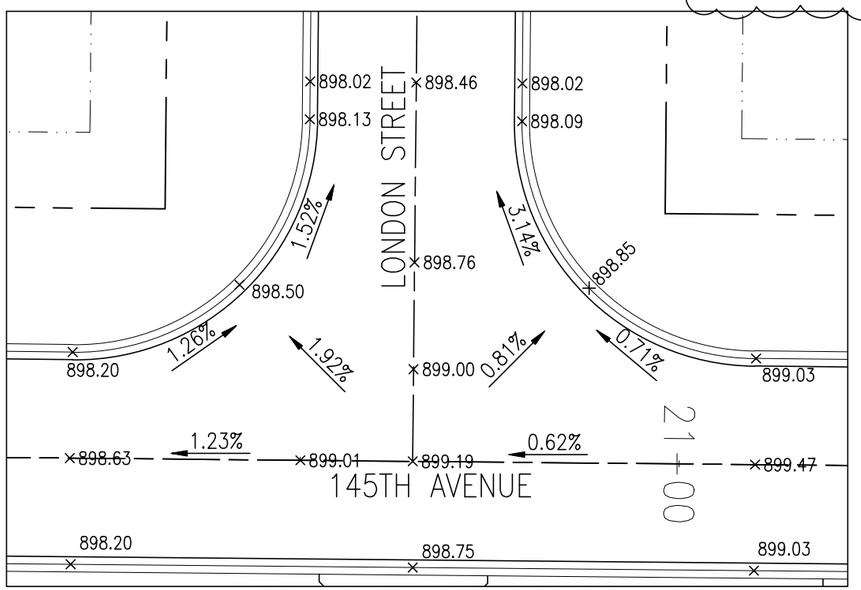
145TH AVE AND EXISTING 145TH AVE



146TH AVE AND RADISSON ROAD (CR 52)



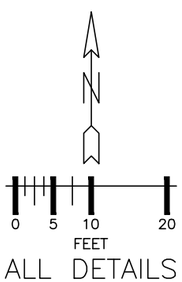
145TH AVE AND KENYON ST



145TH AVE AND LONDON ST

INTERSECTION STATIONS			
CROSS ROAD NAME	CROSS ROAD STATION	TERMININATING ROAD NAME	TERMINATING ROAD STATION
145TH AVENUE	18+89.83	KENYON STREET	50+00
145TH AVENUE	20+64.83	LONDON STREET	40+00

NOTES:
1. TRANSITION PROPOSED CURB TO MATCH EXISTING CURB AT 15:1.



ALL DETAILS

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:
CENTURYLINK (763) 712-5017
CENTERPOINT ENERGY (763) 323-2760
COMCAST (952) 607-4078
CONNEXUS ENERGY (763) 323-4268
XCEL ENERGY (612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

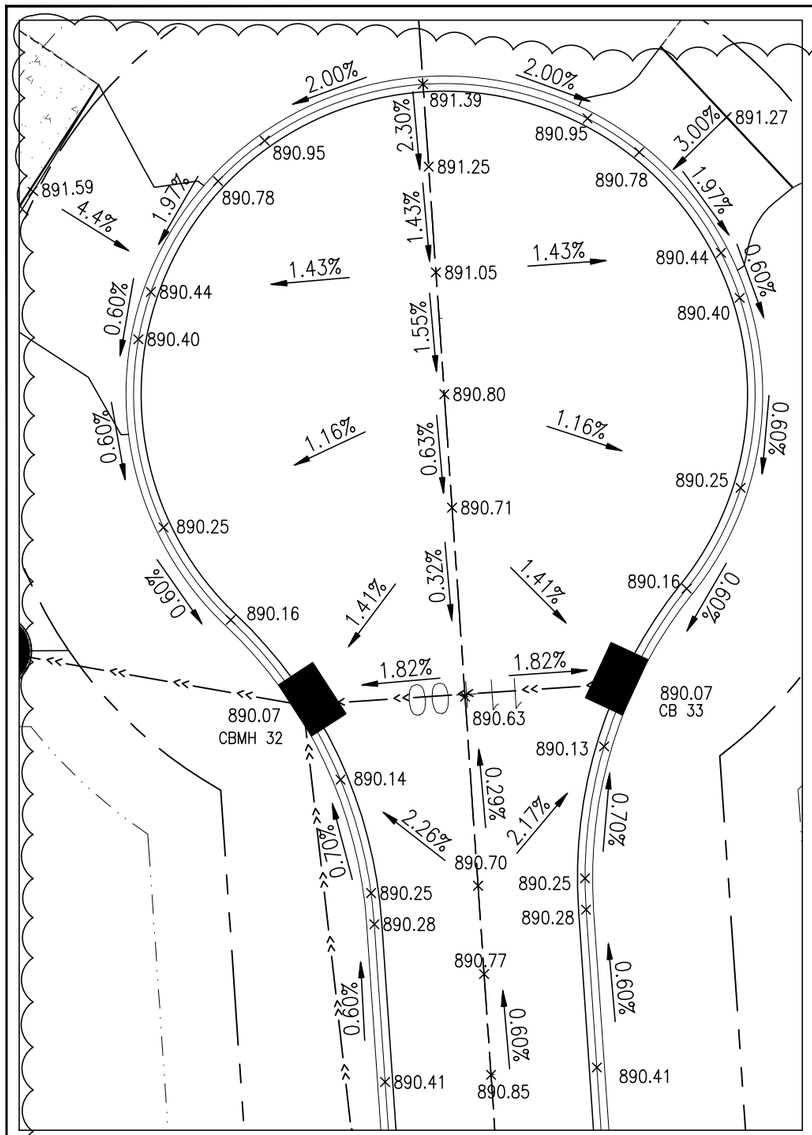
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krueger
DATE 6/29/2022 REG. NO. 48768

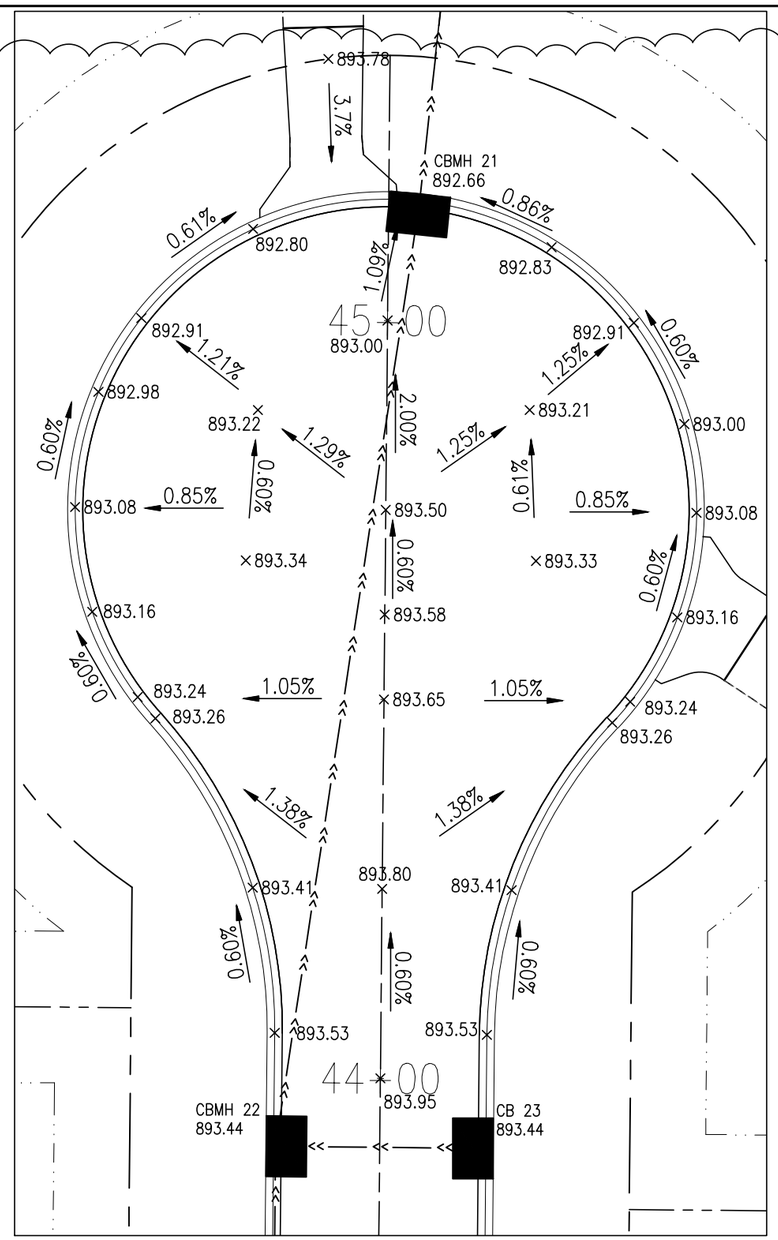
RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

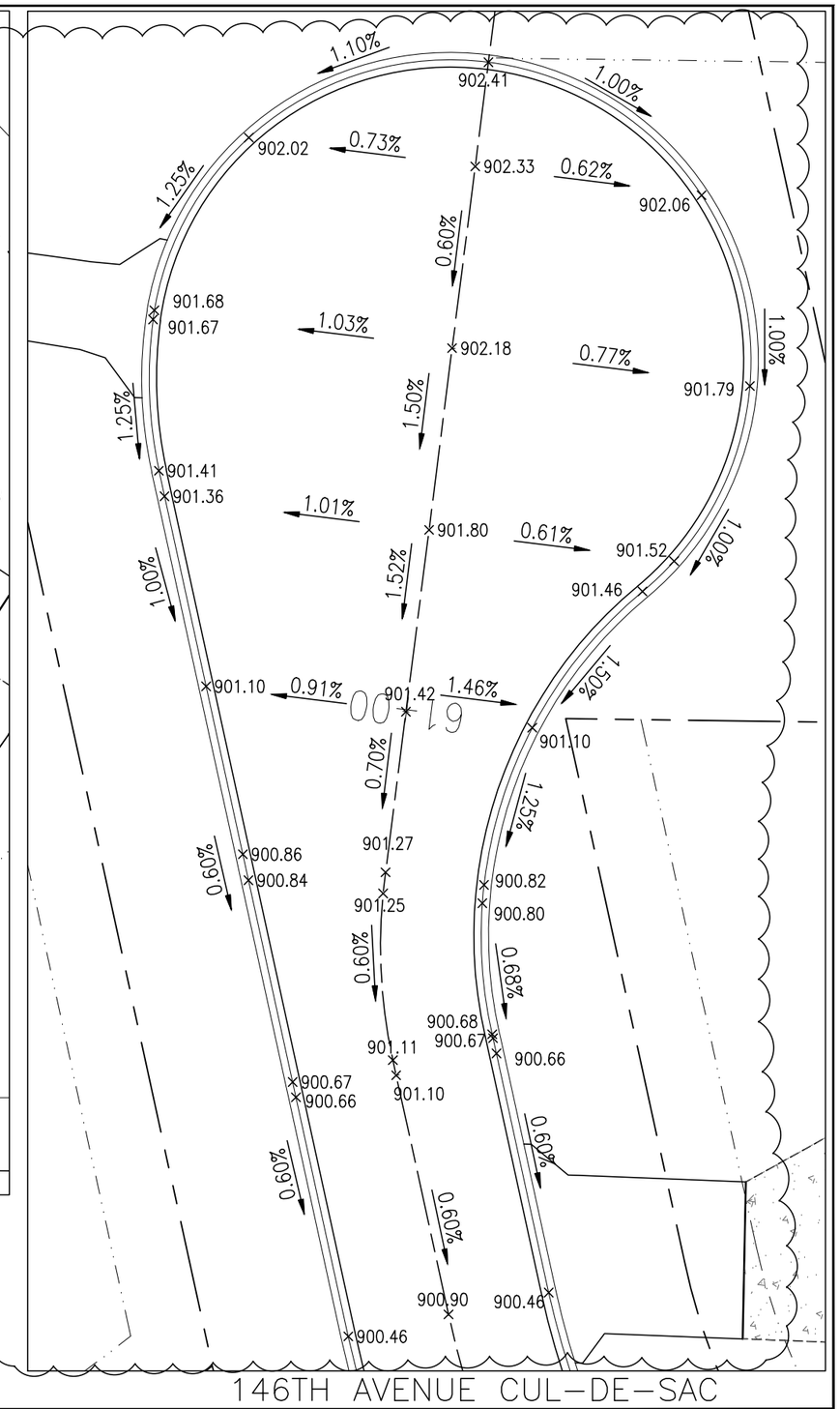
HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
INTERSECTION DETAILS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2105 INT
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 15 OF 51
FILE: 34-2-127







0 5 10 20
FEET

ALL DETAILS

N

UTILITIES:

CENTURYLINK	(763)	712-5017
CENTERPOINT ENERGY	(763)	323-2760
COMCAST	(952)	607-4078
CONNEXUS ENERGY	(763)	323-4268
XCEL ENERGY	(612)	526-4508

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dan Kugler
DATE 6/29/2022 REG. NO. 48768

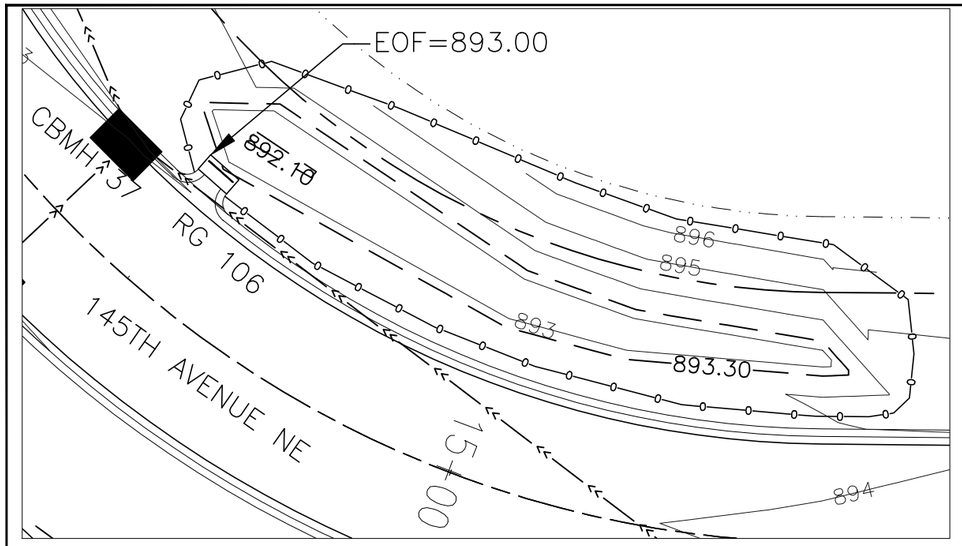
RFC ENGINEERING, INC.
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

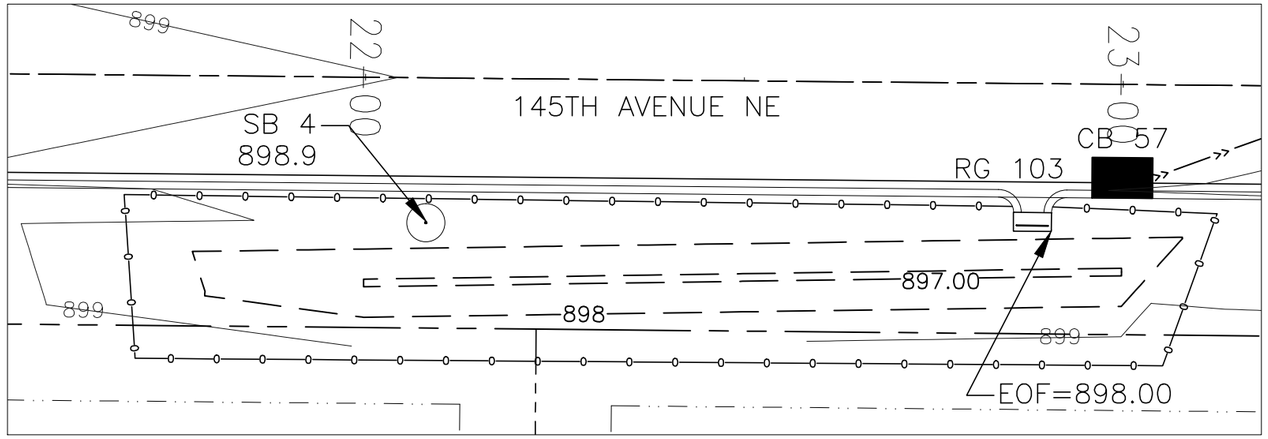
HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
CUL-DE-SAC DETAILS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2105 INT2
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 16 OF 51
FILE: 34-2-128



145TH AVE INFILTRATION BASIN 2

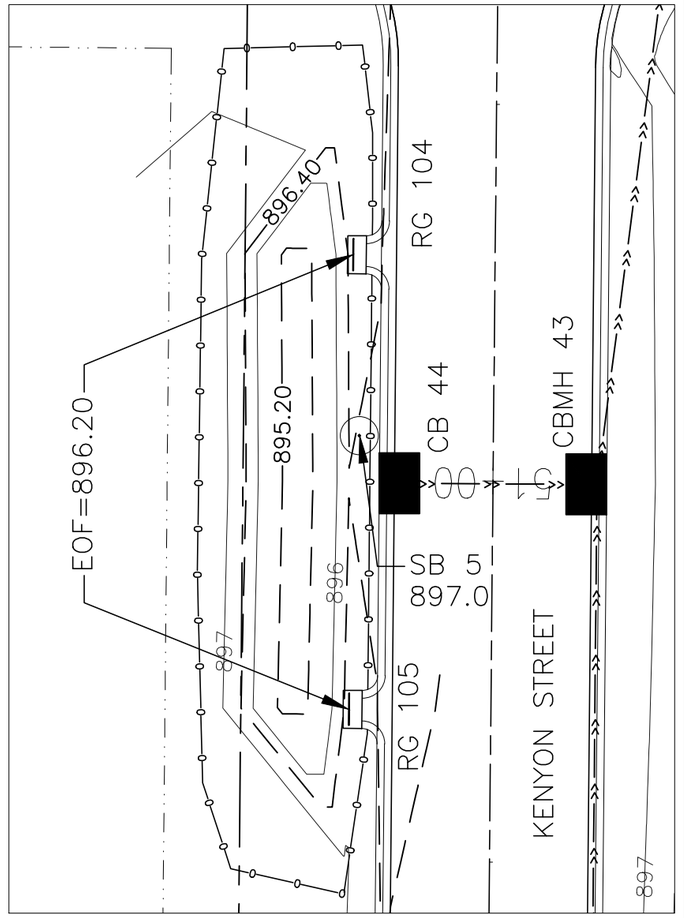


145TH AVE INFILTRATION BASIN 1

146TH AVE INFILTRATION BASIN 3

0 5 10 20
FEET
ALL DETAILS

N



KENYON ST INFILTRATION BASIN 4

SOPHER ONE STATE CALL
800-252-1166 651-454-0002

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dan Krueger
DATE 6/29/2022 REG. NO. 48768

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Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
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Fax 763-862-8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
INFILTRATION BASINS DETAILS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2105 INFIL
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 17 OF 51
FILE: 34-2-129

NOTES:

1. ALL GRADING OPERATIONS SHALL BE CONDUCTED IN A MANNER TO MINIMIZE THE POTENTIAL FOR SITE EROSION.
2. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION BUT IN NO CASE MORE THAN 7 DAYS.
3. AFTER INITIAL GRADING, COMPLETELY SURROUND THE PROPOSED INFILTRATION BASINS WITH EROSION CONTROL MEASURES TO PREVENT BASINS FROM CLOGGING.
4. SALVAGED TOPSOIL SHALL BE STOCKPILED IN PLACE TO MAINTIAN CONTINUITY OF PROPERTY OWNERS EXISTING TURF CONDITIONS. UPON APPROVAL OF ENGINEER, SOIL MAY BE STOCKPILED UPON REVIEW OF ALTERNATE PLAN PROVIDED BY CONTRACTOR.
5. USE SEED MIX 33-261 FOR INFILTRATION BASINS AND ALL NON RESIDENTIAL TURF ESTABLISHMENT.

CONSTRUCTION EXIT

SILT FENCE

SEED MIX 25-151: RESIDENTIAL TURF
MULCH TYPE 6
PLANT APRIL 1ST - JUNE 1ST FOR SPRING PLANTING OR JULY 20TH - SEPTEMBER 20TH FOR FALL PLANTING

SEED MIX 33-261: PONDS & WET AREAS IN CENTRAL, SOUTHERN AND WESTERN MN
MULCH TYPE 3
PLANT APRIL 15TH - JULY 20TH FOR SPRING PLANTING OR SEPTEMBER 20TH - OCTOBER 20TH FOR FALL PLANTING

EROSION CONTROL BLANKET CATEGORY 15

EROSION CONTROL BLANKET CATEGORY 25

0 20 40 80
FEET

N

EROSION BLANKET CATEGORY 25
FES 50
CULVERT END CONTROL
EROSION BLANKET CATEGORY 15
USE SEED MIX 33-261
2021 145TH AVE
2055 145TH AVE
CBMH 56
CBMH 54
CBMH 52
CBMH 51
CB 57
CB 55
CB 53
CB 64
CB 59
CBMH 58
CB 61
CBMH 60
CBMH 62
CB 63
RG 10
INFLITRATION BASIN 1
USE SEED MIX 33-261
2006 145TH AVE
INLET PROTECTION (6)
INLET PROTECTION (4)
2030 145TH AVE
INLET PROTECTION (4)
2125 145TH AVE
2153 145TH AVE
2060 145TH AVE
STABILIZED CONSTRUCTION EXIT
2119 144TH LANE
145TH LANE NE

SOPHER ONE STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
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05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dave Kruglen
DATE 6/29/2022 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
STORMWATER POLLUTION PREVENTION PLAN

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG:	2105 SWPPP 1
DATE:	06/29/22
JOB NUMBER:	2105
SHEET:	18 OF 51
FILE:	34-2-130

NOTES:

1. ALL GRADING OPERATIONS SHALL BE CONDUCTED IN A MANNER TO MINIMIZE THE POTENTIAL FOR SITE EROSION.
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CONSTRUCTION EXIT

SILT FENCE

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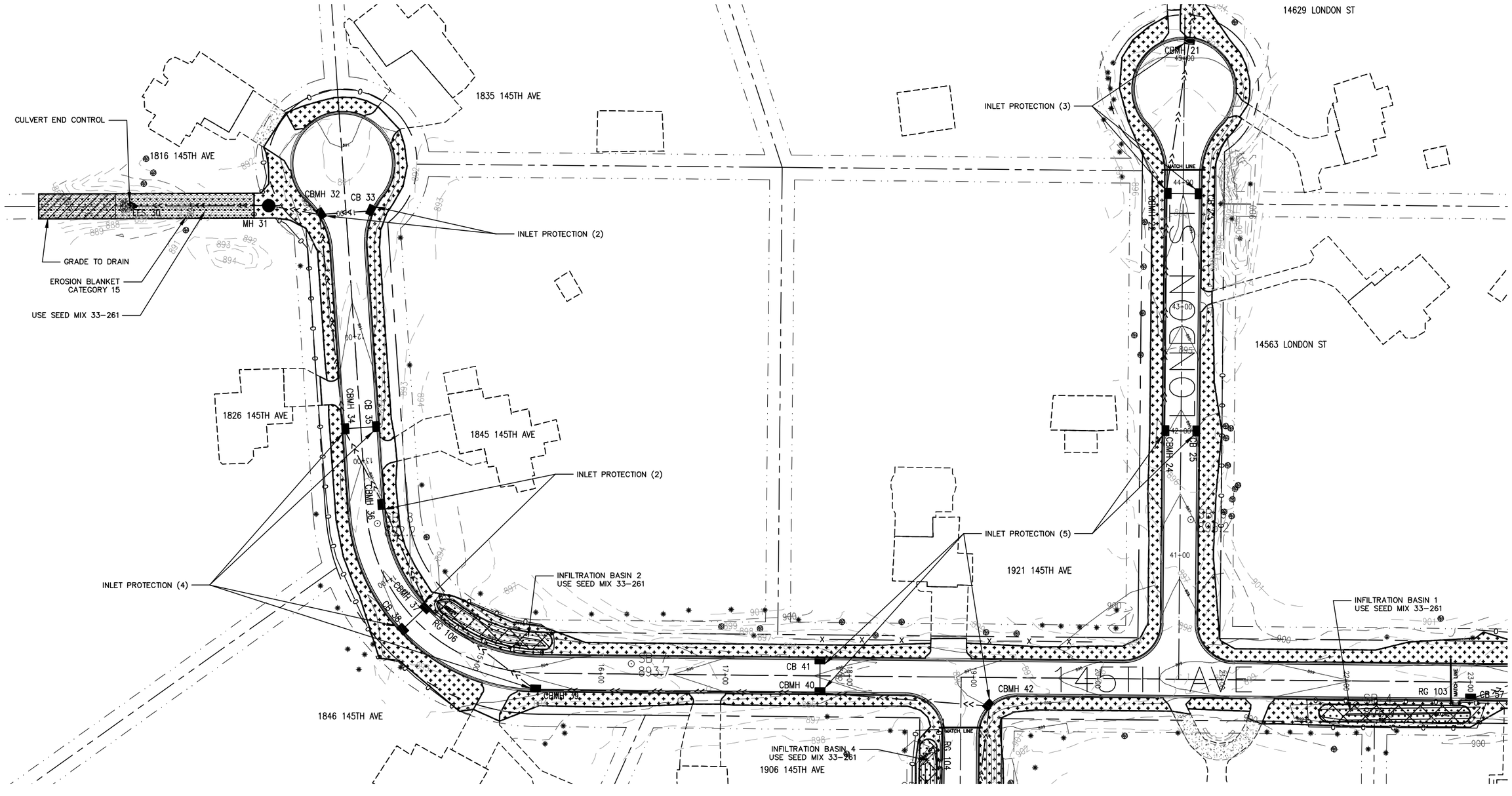
SEED MIX 33-261: PONDS & WET AREAS IN CENTRAL, SOUTHERN AND WESTERN MN
MULCH TYPE 3
PLANT APRIL 15TH - JULY 20TH FOR SPRING PLANTING OR SEPTEMBER 20TH - OCTOBER 20TH FOR FALL PLANTING

EROSION CONTROL BLANKET CATEGORY 15

EROSION CONTROL BLANKET CATEGORY 25

0 20 40 80
FEET



UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dave Kruglen
DATE 6/29/2022 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
STORMWATER POLLUTION PREVENTION PLAN

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2105 SWPPP 2
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 19 OF 51
FILE: 34-2-131

NOTES:

1. ALL GRADING OPERATIONS SHALL BE CONDUCTED IN A MANNER TO MINIMIZE THE POTENTIAL FOR SITE EROSION.
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5. USE SEED MIX 33-261 FOR INFILTRATION BASINS AND ALL NON RESIDENTIAL TURF ESTABLISHMENT.

CONSTRUCTION EXIT

SILT FENCE

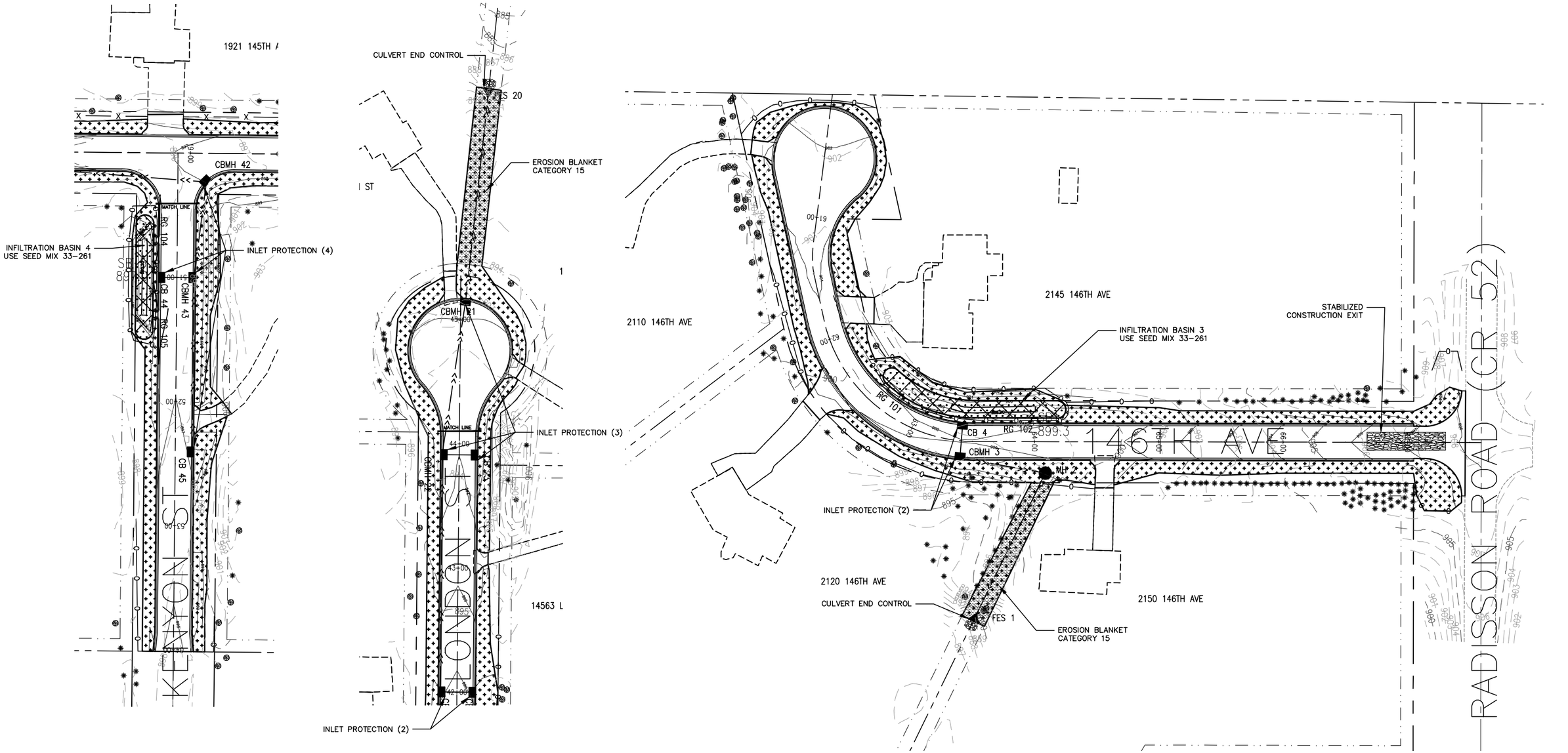
SEED MIX 25-151: RESIDENTIAL TURF
MULCH TYPE 6
PLANT APRIL 1ST - JUNE 1ST FOR SPRING PLANTING OR JULY 20TH - SEPTEMBER 20TH FOR FALL PLANTING

SEED MIX 33-261: PONDS & WET AREAS IN CENTRAL, SOUTHERN AND WESTERN MN
MULCH TYPE 3
PLANT APRIL 15TH - JULY 20TH FOR SPRING PLANTING OR SEPTEMBER 20TH - OCTOBER 20TH FOR FALL PLANTING

EROSION CONTROL BLANKET CATEGORY 15

EROSION CONTROL BLANKET CATEGORY 25

0 20 40 80
FEET



GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krughn
DATE 6/29/2022 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
STORMWATER POLLUTION PREVENTION PLAN

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG:	2105 SWPPP 3
DATE:	06/29/22
JOB NUMBER:	2105
SHEET:	20 OF 51
FILE:	34-2-132

NOTES:

1. ALL GRADING OPERATIONS SHALL BE CONDUCTED IN A MANNER TO MINIMIZE THE POTENTIAL FOR SITE EROSION.
2. ALL EXPOSED SOIL AREAS MUST BE STABILIZED AS SOON AS POSSIBLE TO LIMIT SOIL EROSION BUT IN NO CASE MORE THAN 7 DAYS.
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5. USE SEED MIX 33-261 FOR INFILTRATION BASINS AND ALL NON RESIDENTIAL TURF ESTABLISHMENT.

CONSTRUCTION EXIT

SILT FENCE

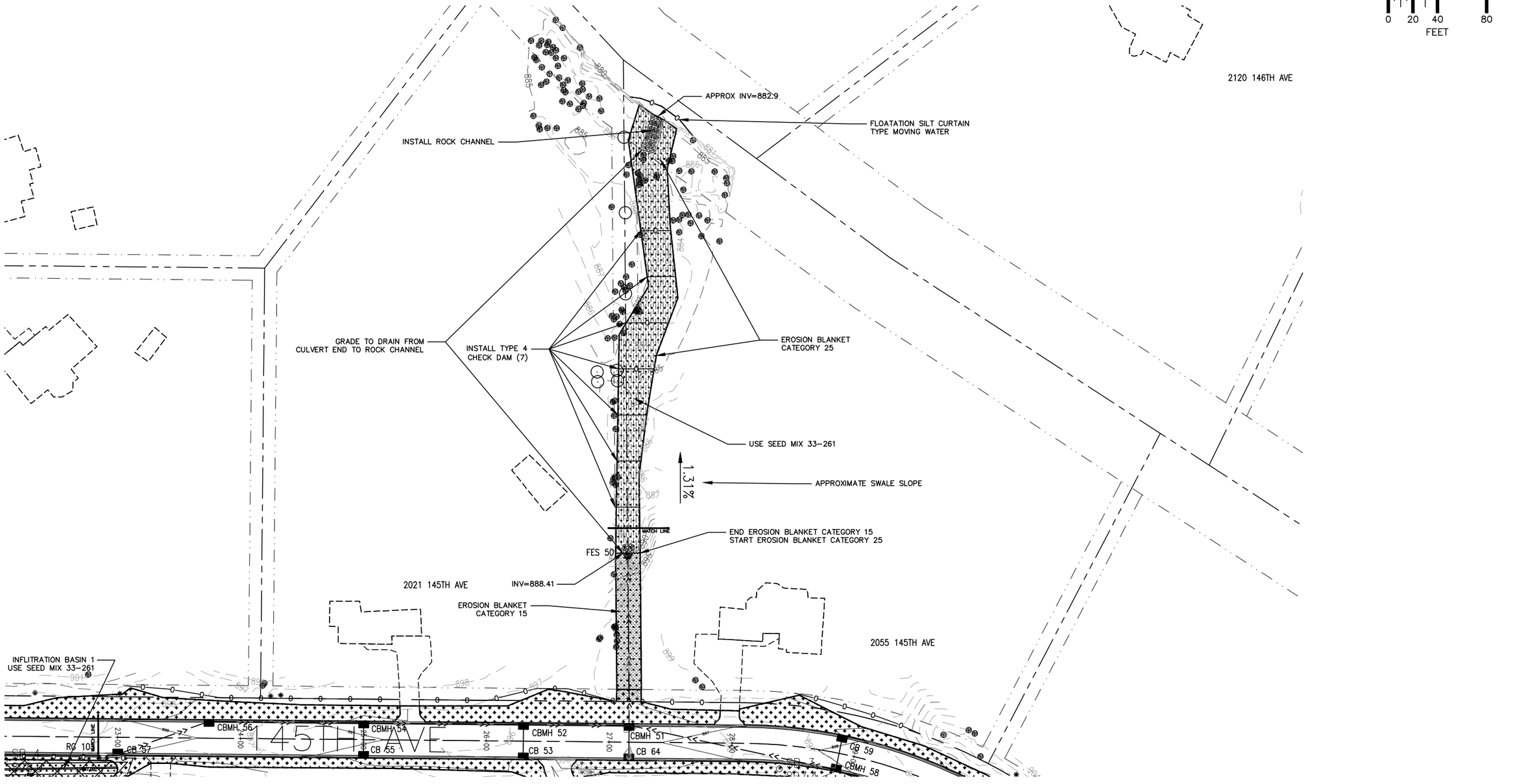
SEED MIX 25-151: RESIDENTIAL TURF
MULCH TYPE 6
PLANT APRIL 1ST - JUNE 1ST FOR SPRING PLANTING OR JULY 20TH - SEPTEMBER 20TH FOR FALL PLANTING

SEED MIX 33-261: PONDS & WET AREAS IN CENTRAL, SOUTHERN AND WESTERN MN
MULCH TYPE 3
PLANT APRIL 15TH - JULY 20TH FOR SPRING PLANTING OR SEPTEMBER 20TH - OCTOBER 20TH FOR FALL PLANTING

EROSION CONTROL BLANKET CATEGORY 15

EROSION CONTROL BLANKET CATEGORY 25

0 20 40 80
FEET



UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dan Krogh
DATE 6/29/2022 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
STORMWATER POLLUTION PREVENTION PLAN

DWG:	2105 SWPPP 4
DATE:	06/29/22
JOB NUMBER:	2105
SHEET:	21 OF 51
FILE:	34-2-133

STORMWATER POLLUTION PREVENTION PLAN (SWPPP)

CONSTRUCTION ACTIVITY INFORMATION:
CREEK VALLEY STREET RECONSTRUCTION, HAM LAKE, ANOKA COUNTY, MINNESOTA, 55304, 45.2527° LATITUDE NORTH, 93.2355° LONGITUDE WEST (BY ONLINE TOOL).

TOTAL PROJECT DISTURBED AREA IS 5.96ACRES.

THIS IS A ROAD CONSTRUCTION PROJECT.

0.49 ACRES OF NEW IMPERVIOUS SURFACE.
0.00 ACRES OF NEW PERVIOUS SURFACE.

DRAINAGE IS TO WETLANDS LOCATED WEST AND NORTH OF THE IMPROVEMENTS WITHIN CITY EASMENT. THE WETLANDS DRAIN INTO COON CREEK. THERE ARE SPECIAL WATER OR IMPAIRED WATER WITHIN ONE MILE DOWNSTREAM OF THE PROJECT. COON CREEK IS IMAPIRED FOR E.COLI AND BIOTIC IMPAIRMENT.

CONTACT INFORMATION:
OWNER: CITY OF HAM LAKE, OWNER CONTACT: DENISE WEBSTER CITY ADMINISTRATOR, DWEBSTER@CI.HAM-LAKE.MN.US, 763-434-9555, 15544 CENTRAL AVENUE, HAM LAKE, MN, 55304

ALTERNATE OWNER CONTACT: TOM COLLINS, CITY ENGINEER. TCOLLINS@RFCENGINEERING.COM 763-862-8000.
RFC ENGINEERING INC, 13635 JOHNSON STREET NE, HAM LAKE, MN 55304

CONTRACTOR: _____

ALTERNATE CONTRACTOR CONTACT: _____
PARTY RESPONSIBLE FOR OPERATION AND MAINTENANCE OF PERMANENT STORMWATER MANAGEMENT SYSTEM: CITY OF HAM LAKE PUBLIC WORKS, JOHN WITKOWSKI, 763-235-1662, 15544 CENTRAL AVENUE, HAM LAKE, MN, 55304

GENERAL CONSTRUCTION PROJECT INFORMATION:
THE PROJECT CONSISTS OF STREET RECONSTRUCTION TO THE CREEK VALLEY DEVELOPMENT, CONCRETE CURB AND GUTTER, STORM SEWER, AND INFILTRATION BASIN CONSTRUCTION IS INCLUDED.

THE SOILS ON THE SITE ARE PRIMARILY HYDROLOGIC SOIL GROUP TYPE B WITH MODERATE INFILTRATION CAPACITY AND GROUP TYPE C WITH LOW INFILTRATION CAPACITY. THE GROUNDWATER IN THIS AREA HIGH.

GENERAL SITE INFORMATION:
ALL EROSION CONTROL MEASURES MUST BE PLACED PRIOR TO COMMENCEMENT OF LAND DISTURBING ACTIVITIES AND BE MAINTAINED UNTIL ALL DISTURBED AREAS ON THE SITE HAVE BEEN RESTORED.

CONSTRUCTION EXITS SHALL BE SURFACED WITH CRUSHED ROCK AND DESIGNATED PRIOR TO CONSTRUCTION (REFER TO DETAIL).

TRENCHES FOR STORM DRAIN PIPE AND STRUCTURES ARE TO BE BACKFILLED BY THE END OF THE WORK DAY.

NO STORMWATER MITIGATION MEASURES ARE REQUIRED AS THE RESULT OF AN ENVIRONMENTAL, ARCHAEOLOGICAL, OR OTHER REQUIRED LOCAL, STATE, OR FEDERAL REVIEW OF THE PROJECT.

THE PROJECT IS NOT LOCATED IN A KARST AREA.

THE PROJECT DOES NOT DISCHARGE TO A CALCAREOUS FEN LISTED IN MINN. R. 7050.0180, SUBP. 6B.

THE SITE DOES DISCHARGE TO A WATER THAT IS LISTED AS IMPAIRED FOR E.COLI AND BIOTIC IMPAIRMENT.

SELECTION OF A PERMANENT STORMWATER MANAGEMENT SYSTEM:
NEW IMPERVIOUS SURFACE CREATED BY THIS PROJECT IS 0.49 ACRES.

PER COON CREEK WATERSHED DISTRICT, ANOKA CONSERVATION DISTRICT, AND MINNESOTA BOARD OF WATER AND SOIL RESOURCES, THERE IS INFILTRATION ON SITE DEAMED FEASIBLE, WITH OTHERS NOT DUE TO THE HIGH GROUND WATER TABLE.

HYDROLOGIC REPORT (DRAINAGE CALCULATIONS) AND DRAINAGE MAPS (WITH DRAINAGE DIVIDES) PREPARED FOR THIS PROJECT ARE AVAILABLE IN THE CITY'S ENGINEERS OFFICE. STORM WATER RUNOFF FROM THE SITE INFILTRATES ON THE SITE AND THNE DRAINS INTO THE REGIONAL PONDS AND OVERFLOW TO WETLANDS WEST AND NORTH OF THE PROJECT. THE WETLANDS DRAIN INTO COON CREEK. THE RUNOFF FROM THE SITE WILL BE CONVEYED VIA NEW ON SITE STORM DRAINS. THE LAST STORM DRAIN STRUCTURE JUST PRIOR TO DISCHARGE WILL BE EQUIPPED WITH A SUMP (GRIT CHAMBERS). GRIT CHAMBERS ARE BEING USED DUE TO THE HIGH GROUND WATER TABLE. THE SUMP (GRIT CHAMBERS) ARE SIZED PER COON CREEK WATERSHED DISTRICT REQUIREMENTS.

EROSION PREVENTION PRACTICES:
THERE ARE NO CONSTRUCTION PHASING, VEGETATIVE BUFFER STRIPS, LONG HORIZONTAL SLOPE GRADING FOR THE PROJECT. THERE ARE UNDISTURBED AREAS WITHIN THE PROJECT LIMITS.

ALL DISTURBED AREAS SHALL BE RESTORED WITH SOD, SEED, WOOD FIBER BLANKET, OR PAVED SURFACE WITHIN SEVEN (7) DAYS OF ROUGH GRADING.

ALL EXPOSED SOIL AREAS MUST HAVE TEMPORARY EROSION PROTECTION OR PERMANENT COVER WITHIN SEVEN (7) DAYS AFTER THE AREA IS NOT ACTIVELY BEING WORKED.

FERTILIZER: MnDOT SPECIFICATION 3881, TYPE 2 SEEDING: MnDOT SEED MIXTURE 25-131 OR 33-261 (FOR PONDS), HYDROMULCH: MnDOT SPECIFICATION 3884 TYPE 1 OR 3 WITH APPLICATION RATE PER MnDOT SPECIFICATION 2575.3H.

PROVIDE EROSION CONTROL FABRIC FOR ALL SLOPES STEEPER THAN 1:3.

THERE ARE NO DRAINAGE DITCHES CONSTRUCTED WITH THIS PROJECT.

SEDIMENT CONTROL PRACTICES:
THERE ARE NO DRAINAGE DITCHES OR SEDIMENT BASINS FOR THIS PROJECT.

THERE ARE NO SLOPES WITH A GRADE OF 1:3 OR STEEPER WITH A SLOPE LENGTH GREATER THAN 75 FEET.

THERE ARE DRAINAGE INFILTRATION BASINS FOR THIS PROJECT.

ALL SEDIMENT CONTROL DEVICES ARE TO BE IN PLACE PRIOR TO UPSTREAM LAND DISTURBING ACTIVITIES.

WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER, PIPE OUTLETS MUST CONTAIN RIPRAP, SEED AND PLACE EROSION CONTROL BLANKETS ON DISTURBED AREAS WITHIN 200 LINEAL FEET OF PIPE OUTLETS INCLUDING THE DOWN SLOPE TO THE PIPE OUTLET, SILT FENCING TO BE PLACED AROUND THE DISTURBED AREA AND SILT FENCE ROUTED ACROSS THE TOP OF THE OUTLET.

WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER, SEED AND PLACE EROSION CONTROL BLANKETS ON DISTURBED AREAS WITHIN 200 FEET OF PIPE INLET INCLUDING THE DOWN SLOPE TO THE PIPE INLET, SILT FENCING TO BE PLACED AROUND THE DISTURBED AREA, PLACE A SECOND SILT FENCE ROUTED ACROSS THE TOP OF THE INLET AND PLACE INLET PROTECTION. PIPE INLET PROTECTION SHALL BE PER BMPS SUCH AS SILT FENCE OR STRAW BALES STAKED AROUND THE APRON OPENING OR OTHER APPROVED EQUIVALENT.

WITHIN 24 HOURS OF CONNECTION TO A SURFACE WATER, SEED AND PLACE EROSION CONTROL BLANKETS ON DISTURBED AREAS WITHIN 200 FEET OF CATCH BASIN INLET. PLACE INLET PROTECTION IMMEDIATELY AFTER STRUCTURE IS BACKFILLED. CATCH BASIN INLET PROTECTION SHALL BE PER BMPS SUCH AS CLEAR ROCK AROUND STEEL PLATE OVER FABRIC OR OTHER APPROVED EQUIVALENT UNTIL THE CATCH BASIN CASTING IS PLACED. IMMEDIATELY AFTER THE CASTING IS PLACED, PROVIDE CATCH BASIN INLET PROTECTION PER BMPS SUCH AS FILTER BAG INSERT OR OTHER APPROVED EQUIVALENT. NO CAPTURED SEDIMENT SHOULD BE ALLOWED TO DROP INTO THE CATCH BASIN.

PROVIDE SILT FENCE DOWNSTREAM OF STOCKPILE AREAS. STOCKPILES ARE NOT TO BLOCK DRAINAGE CONVEYANCE SYSTEMS.

SEDIMENT TRACKED OFFSITE SHALL BE MINIMIZED AND SWEPT ON A DAILY BASIS.

TEMPORARY SEDIMENTATION BASINS ARE NOT BEING USED TO REDUCE WETLAND IMPACTS, DUE TO THE HIGH GROUND WATER TABLE AND THE LACK OF RIGHT OF WAY.

DEWATERING AND BASIN DRAINING:
ALL DEWATERING IS TO DISCHARGE TO SEDIMENT SACKS, ROCK WEEPER, BIO ROLL AREA, ETC. TO PREVENT EROSION AND MINIMIZE SEDIMENT DISCHARGING FROM THE SITE. EXCESSIVE SEDIMENT-LADEN WATER WILL NOT BE PERMITTED TO DISCHARGE FROM THE SITE. DEWATERING PRACTICES ARE NOT TO CAUSE DOWNSTREAM NUISANCE CONDITIONS, EROSION, OR NON-PERMITTED WETLAND INUNDATION CAUSING ADVERSE IMPACTS. DISCHARGE FROM DEWATERING WILL BE TO WETLANDS. LARGE VOLUMES OF DEWATERING WILL REQUIRE DISCHARGE INTO SEDIMENT SACKS PRIOR TO DISCHARGING INTO THE WETLANDS.

ADDITIONAL BMPS FOR SPECIAL WATERS AND DISCHARGES TO WETLANDS:
THE PROJECT DOES DISCHARGE INTO OR WITHIN 1 MILE OF SPECIAL WATERS.

THERE ARE NO BUFFER ZONES OR UNDISTURBED AREA ZONES.

THE STORM DRAIN SYSTEM WAS SET UP TO DISTRIBUTE THE STORMWATER RUNOFF INTO THE PROJECT WETLANDS AS CLOSE TO EXISTING CONDITIONS AS POSSIBLE. THIS INCLUDED PROVIDING STORM DRAIN ON BOTH SIDES OF THE STREET IN ORDER TO ACHIEVE THIS. THE DRAINAGE WAS APPROVED BY COON CREEK WATERSHED DISTRICT.

THERE IS NO CONVERSION OF WETLANDS INTO STORMWATER PONDS.

INSPECTION AND MAINTENANCE:
THE CONTRACTOR SHALL PLACE A RAIN GAUGE ON THE PROJECT SITE AT A LOCATION APPROVED BY THE ENGINEER. RAINFALL DATA SHALL BE KEPT WITH THE SWPPP RECORDS.

THE CONTRACTOR MUST INSPECT THE CONSTRUCTION SITE ONCE EVERY SEVEN (7) DAYS DURING ACTIVE CONSTRUCTION AND WITHIN 24 HOURS AFTER A RAINFALL EVENT GREATER THAN 0.5 INCHES IN 24 HOURS. INSPECTIONS AND MAINTENANCE TO BE RECORDED IN WRITING. THE SWPPP INSPECTION FOR THE CONSTRUCTION IS TO BE CONDUCTED BY _____ OF _____.

INSPECTIONS FORMS ARE AVAILABLE AT:
http://www.pca.state.mn.us/index.php/water/water-types-and-programs/stormwater/construction-stormwater/construction-stormwater.html
THE ACTUAL FORM IS UNDER INSPECTION CHECKLIST.

THE CONTRACTOR WILL BE RESPONSIBLE FOR THE OPERATION AND MAINTENANCE OF TEMPORARY AND PERMANENT WATER QUALITY MANAGEMENT DEVICES, AS WELL AS ALL EROSION AND SEDIMENT CONTROL, FOR THE DURATION OF THE PROJECT.

THE CONTRACTOR WILL INVESTIGATE AND COMPLY WITH THE FOLLOWING:

SILT FENCE WILL BE REPAIRED, REPLACED, OR SUPPLEMENTED WHEN IT BECOMES NONFUNCTIONAL OR THE SEDIMENT REACHES 1/2 OF THE FENCE HEIGHT. THE CORRECTIONS MUST BE MADE WITHIN 24 HOURS OF DISCOVERY, OR AS SOON AS FIELD CONDITIONS ALLOW ACCESS.

SEDIMENT WILL BE REMOVED FROM SEDIMENTATION BASIN WHEN IT REACHES A DEPTH OF TWO FEET OR ONE-HALF OF THE STORAGE VOLUME, WHICHEVER IS LESS, WITHIN 72-HOURS OF DISCOVERY.

SEDIMENT DEPOSITED IN SURFACE WATERS WILL BE REMOVED WITHIN SEVEN (7) DAYS OF DISCOVERY. RESTABILIZING THE AREAS WHERE SEDIMENT REMOVAL RESULTS IN EXPOSED SOIL WILL BE COMPLETED WITHIN THE SAME SEVEN (7) DAY TIME FRAME.

CONSTRUCTION SITE VEHICLE EXIT LOCATIONS WILL BE INSPECTED FOR OFFSITE SEDIMENT TRACKING ONTO PAVED SURFACES. TRACKED SEDIMENT WILL BE REMOVED FROM THE PAVED SURFACE WITHIN 24 HOURS OF DISCOVERY.

OFFSITE ACCUMULATIONS OF SEDIMENT WILL BE REMOVED IN A TIMELY MANNER AND AT A FREQUENCY SUFFICIENT TO MINIMIZE OFFSITE IMPACTS.

POLLUTION PREVENTION MANAGEMENT MEASURES:

THE CONTRACTOR SHALL IMPLEMENT THE FOLLOWING POLLUTION PREVENTION MANAGEMENT MEASURES ON THE SITE:

SOLID WASTE: COLLECT SEDIMENT, ASPHALT AND CONCRETE MILLINGS, FLOATING DEBRIS, PAPER, PLASTIC, FABRIC, CONSTRUCTION AND DEMOLITION DEBRIS, AND OTHER WASTES MUST BE DISPOSED OF PROPERLY OFFSITE AND MUST COMPLY WITH MPCA DISPOSAL REQUIREMENTS.

HAZARDOUS MATERIALS: OIL, GASOLINE, PAINT AND ANY HAZARDOUS SUBSTANCES MUST BE PROPERLY STORED, INCLUDING SECONDARY CONTAINMENT, TO PREVENT SPILLS, LEAKS OR OTHER DISCHARGE. RESTRICTED ACCESS TO STORAGE AREAS MUST BE PROVIDED TO PREVENT VANDALISM. STORAGE AND DISPOSAL OF HAZARDOUS WASTE MUST BE IN COMPLIANCE WITH MPCA REGULATIONS.

EXTERNAL WASHING OF TRUCKS, INCLUDING CONCRETE DELIVERY TRUCKS, AND OTHER CONSTRUCTION VEHICLES MUST BE LIMITED TO A DEFINED AREA OF THE SITE. RUNOFF MUST BE CONTAINED AND WASTE PROPERLY DISPOSED OF. NO ENGINE DEGREASING IS ALLOWED ON SITE. CONCRETE WASHOUT ON SITE MUST BE CONTAINED IN A LEAK-PROOF CONTAINMENT FACILITY OR IMPERMEABLE LINER.

THE CITY IS RESPONSIBLE FOR LONG TERM MAINTENANCE OF THE STORM DRAIN INCLUDING THE SUMPS (GRIT CHAMBERS). THE GRIT CHAMBERS ARE TO BE INSPECTED YEARLY AND CLEANED OUT AS NECESSARY TO MAINTAIN FUNCTION.

THE CONTRACTOR IS RESPONSIBLE FOR MONITORING AIR POLLUTION AND ENSURING IT DOES NOT EXCEED LEVELS SET BY LOCAL, STATE, OR FEDERAL REGULATIONS. THIS INCLUDES DUST CREATED BY WORK BEING PERFORMED ON THE SITE. AIR POLLUTION AND DUST CONTROL CORRECTION ARE CONSIDERED INCIDENTAL TO THE UNIT BID PRICES FOR WHICH WORK IS BEING PERFORMED. ADDITIONAL DUST CONTROL MEASURES MAY BE REQUIRED BY THE ENGINEER.

NO SANITARY AND SEPTIC WASTE IS ON THE SITE.

FINAL STABILIZATION:
THE CONTRACTOR MUST ENSURE FINAL STABILIZATION OF THE SITE. FINAL STABILIZATION IS ACHIEVED WHEN ALL SOIL DISTURBING ACTIVITIES AT THE SITE HAVE BEEN COMPLETED AND ALL SOILS ARE STABILIZED BY A UNIFORM PERENNIAL VEGETATIVE COVER WITH A DENSITY OF 70 PERCENT OF THE PERVIOUS SURFACE AREA, OR OTHER EQUIVALENT MEANS NECESSARY TO PREVENT SOIL FAILURE UNDER EROSIVE CONDITIONS.

ALL TEMPORARY EROSION PROTECTION, INCLUDING SILT FENCE, ARE TO BE REMOVED AFTER FINAL STABILIZATION OF THE SITE.

RECORDS RETENTION:
ALL REQUIREMENTS OF THE NPDES PERMIT AND THIS SWPPP SHALL REMAIN IN EFFECT UNTIL ALL LAND DISTURBING ACTIVITY HAS BEEN COMPLETED, ALL FINAL RESTORATION HAS BEEN COMPLETED AND THE NOTICE OF TERMINATION FORM HAS BEEN SUBMITTED TO THE MINNESOTA POLLUTION CONTROL AGENCY (MPCA).

REFER TO OTHER SHEETS OF THIS PLAN SET FOR DETAILED CONSTRUCTION INFORMATION. EXISTING AND PROPOSED GRADES FOR THE ROADWAY ARE SHOWN ON THE PLAN AND PROFILE SHEETS AND ON THE CROSS SECTION SHEETS.

THE CONTRACTOR SHALL MAINTAIN A COPY OF THE PLANS ONSITE AT ALL TIMES UNTIL THE PROJECT HAS BEEN ACCEPTED BY THE CITY. THE CONTRACTOR SHALL UPDATE THE SWPPP AS NECESSARY TO REFLECT CURRENT CONDITIONS ON THE SITE. CONTRACTOR IS TO PROVIDE THE ENGINEER A COPY OF THE REVISED SWPPP. THE REVISED SWPPP IS TO BE MAINTAINED WITH THE CONSTRUCTION SET OF PLANS.

THE CONSTRUCTION PLANS, INCLUDING THE SWPPP, AND THE SWPPP INSPECTION REPORTS ARE TO BE AVAILABLE TO THE ENGINEER AND TO THE MPCA AND COON CREEK WATERSHED DISTRICT INSPECTORS AT ALL TIMES.

THE CONTRACTOR IS TO PROVIDE THE ENGINEER A COPY OF THE SWPPP INSPECTION REPORTS WITHIN SEVEN (7) DAYS AFTER THE INSPECTION.

THE CONTRACTOR IS TO PROVIDE THE ENGINEER A COPY OF THE REVISED SWPPP WITHIN SEVEN (7) DAYS AFTER THE CONTRACTOR REVISES THE SWPPP.

ALL SWPPP INSPECTIONS AND ALL BMPS SHALL BE PLACED UNDER THE SUPERVISION OF A CONSTRUCTION INSTALLER CERTIFIED BY THE MPCA. THE CONSTRUCTION SITE SHALL BE MANAGED AND MAINTAINED BY A MPCA CERTIFIED CONSTRUCTION SITE MANAGEMENT.

THE CONTRACTOR SHALL PROVIDE THE CITY WITH A COPY OF CONSTRUCTION INSTALLER CERTIFICATION AND CONSTRUCTION SITE MANAGEMENT CERTIFICATION. A COPY OF THE CERTIFICATIONS, INCLUDING SWPPP DESIGNER, SHALL BE KEPT WITH THE SWPPP.

THE SWPPP, THE SWPPP INSPECTIONS REPORTS AND MAINTENANCE RECORDS SHALL BE KEPT FOR 3 YEARS.

DRAINAGE CALCULATIONS AND DRAINAGE MAPS WILL BE KEPT BY THE CITY FOR AT LEAST 3 YEARS.

SEQUENCE OF EROSION CONTROL

1. OBTAIN ALL NECESSARY PERMITS, INCLUDING NPDES GENERAL STORMWATER PERMIT.
2. PLACE ALL PERIMETER SEDIMENT CONTROL DEVICES, TEMPORARY SEDIMENTATION BASINS, SILT FLOTATION CURTAINS, AND ROCK CONSTRUCTION EXITS.
3. CONTACT CITY ENGINEER FOR APPROVAL OF SEDIMENT CONTROL DEVICES.
4. ROUGH IN GRADE.

5a. CONTACT COON CREEK WATERSHED DISTRICT TO PROVIDE DOUBLE RING INFILTROMETER TEST REQUIRED FOR INFILTRATION BASINS OR BY FILLING THE BASIN TO A MINIMUM DEPTH OF 6 INCHES OF WATER AND MONITOR THE TIME NECESSARY TO DRAIN OR OTHER APPROVED METHOD.

5. PLACE TEMPORARY EROSION CONTROL DEVICES AS NECESSARY.
6. PLACE STORM DRAIN SYSTEM.
7. RE-ADJUST TEMPORARY EROSION CONTROL DEVICES AS NECESSARY. PLACE STORM DRAIN INLET PROTECTION AND OUTLET PROTECTION DEVICES AS NECESSARY.
8. PLACE SITE PAVEMENT.
9. AFTER ALL DISTURBED AREAS HAVE BEEN STABILIZED, OBTAIN APPROVAL OF CITY ENGINEER.
10. CONTRACTOR TO REMOVE ALL TEMPORARY EROSION CONTROL DEVICES AFTER ACCEPTANCE BY THE CITY.

TABULATION SUMMARY

ITEM	UNIT	TOTAL
SILT FENCE	L.F.	3815
FLOATATION SILT CURTAIN TYPE FLOATING WATER	L.F.	62
EROSION CONTROL BLANKET CATEGORY 15	S.Y.	1223
EROSION CONTROL BLANKET CATEGORY 25	S.Y.	983
TYPE 4 CHECK DAM	L.F	174
FES/PIPE OUTLET PROTECTION	EACH	4
CATCH BASIN INLET PROTECTION	EACH	35
CLASS III RIPRAP W/ FABRIC	C.Y.	43.8
GEOTEXTILE FILTER FABRIC	S.Y.	53.1
HYDROMULCH TYPE 6	ACRE	2.70
TURF ESTABLISHMENT: SEED MIX 25-151	ACRE	2.21
TURF ESTABLISHMENT: SEED MIX 33-261	ACRE	0.49

I HEREBY CERTIFY THAT THIS SWPPP WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY CERTIFIED SWPPP DESIGNER.

06/29/2022 — Dave Krugler
DATE — David A. Krugler

GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:34

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dave Krugler
DATE 6/29/2022 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
STORMWATER POLLUTION PREVENTION PLAN

DWG: 2105 SWPPP 5
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 22 OF 51
FILE: 34-2-134

NOTES:
1. ALL DISTURBED AREAS TO BE SEEDED, MULCHED AND FERTILIZED WITHIN 7 DAYS OF ROUGH GRADING.
2. ALL LOCATIONS OF STOCKPILES SHALL BE SUBMITTED FOR THE CITY ENGINEERS APPROVAL PRIOR TO STOCKPILING. ALL EROSION CONTROL FOR STOCKPILES SHALL BE PER BMP'S AND SWPPP.
3. ALL SILT FENCE MUST BE IN PLACE BEFORE ANY LAND IS DISTURBED.
4. EXISTING BITUMINOUS IS APPROXIMATELY 4" WITH 4" CLASS 5.

0 25 50 100
FEET

N

RECLAIM BITUMINOUS

TREE CLEAING (ACRE)

TREES TO REMOVE
TREES TO REMAIN

SAWCUT CONCRETE AT SECOND JOINT (17.3' FROM ROAD EGDE)

1835 145TH AVE

SAWCUT BITUMINOUS AT 14' FROM ROAD EDGE

1816 145TH AVE

SALVAGE SUPPORT AND MAILBOX (4)

REMOVE STORM STRUCTURES, PIPES, AND FLARED END

1826 145TH AVE

1845 145TH AVE

SAWCUT BITUMINOUS AT 18' FROM ROAD EDGE

SAWCUT BITUMINOUS AT 15.6' FROM ROAD EDGE

SB 8
892.2

SALVAGE SUPPORT AND MAILBOX

PROTECT POLE

1846 145TH AVE

SAWCUT BITUMINOUS AT 26.8' FROM ROAD EDGE

SALVAGE SUPPORT AND MAILBOX

SB 7
893.7

SAWCUT BITUMINOUS AT 10.6' FROM ROAD EDGE

SALVAGE POST

14632 LONDON ST

REMOVE STORM STRUCTURES, PIPES, AND FLARED END

SAWCUT CONCRETE AT SECOND JOINT (25' FROM ROAD EGDE)

14629 LONDON ST

SAWCUT BITUMINOUS AT 10.8' FROM ROAD EDGE

SALVAGE SUPPORT AND MAILBOX (2)

SAWCUT BITUMINOUS AT 11.6' FROM ROAD EDGE

SALVAGE WOODEN RETAINING WALL AROUND DRIVEWAY.

14563 LONDON ST

RECLAIM BITUMINOUS ROAD

SAWCUT BITUMINOUS AT 19' FROM ROAD EDGE

1921 145TH AVE

PROTECT FENCE

SALVAGE SUPPORT AND MAILBOX (4)

REMOVE SIGN C-23

REMOVE SIGN C-23

1906 145TH AVE

SB 5
897.0

SAWCUT CONCRETE AT THIRD JOINT (14.3' FROM ROAD EGDE)

SAWCUT CONCRETE AT THIRD JOINT (21' FROM ROAD EGDE)

SAWCUT BITUMINOUS AT 8' FROM ROAD EDGE

2006 145TH AVE

14531 ISANTI ST

PROTECT RETAINING WALL

PROTECT POLE

MATCHLINE

MATCHLINE

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krueger
DATE 6/29/2022 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
REMOVAL PLAN
WEST HALF OF 145TH AVE & LONDON STREET

DWG: 2105 REMOVAL 1
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 23 OF 51
FILE: 34-2-135

NOTES:
1. ALL DISTURBED AREAS TO BE SEEDED, MULCHED AND FERTILIZED WITHIN 7 DAYS OF ROUGH GRADING.
2. ALL LOCATIONS OF STOCKPILES SHALL BE SUBMITTED FOR THE CITY ENGINEERS APPROVAL PRIOR TO STOCKPILING. ALL EROSION CONTROL FOR STOCKPILES SHALL BE PER BMP'S AND SWPPP.
3. ALL SILT FENCE MUST BE IN PLACE BEFORE ANY LAND IS DISTURBED.
4. EXISTING BITUMINOUS IS APPROXIMATELY 4" WITH 47 CLASS 5.

0 25 50 100
FEET

N

14563 LONDON ST

1921 145TH AVE

MATCHLINE

MATCHLINE

REMOVE STORM STRUCTURES, PIPES, AND FLARED END

CLEAR AND GRUB

SALVAGE WOODEN FENCE AND POSTS

2021 145TH AVE

2055 145TH AVE

SAWCUT BITUMINOUS AT 16.4' FROM ROAD EDGE

SALVAGE SUPPORT AND MAILBOX (1)

SAWCUT BITUMINOUS AT 14.5' FROM ROAD EDGE

RECLAIM BITUMINOUS

TREE CLEAING (ACRE)

TREES TO REMOVE
TREES TO REMAIN

SB 4
898.9

SB 3
897.4

REMOVE SIGN C-26

2006 145TH AVE

SAWCUT BITUMINOUS AT 21.6' FROM ROAD EDGE

SALVAGE SUPPORT AND MAILBOX (2)

2030 145TH AVE

PROTECT RETAINING WALL

SB 5
897.0

SB 2
899.4

SAWCUT BITUMINOUS AT 14' FROM ROAD EDGE

2125 145TH AVE

SALVAGE SUPPORT AND MAILBOX (2)

14531 ISANTI ST

REMOVE SIGN C-27

RECLAIM BITUMINOUS ROAD

SAWCUT BITUMINOUS AT 12.8' FROM ROAD EDGE

2153 145TH A

2060 145TH AVE

REMOVE SIGN C-28

SAWCUT CONCRETE AT THIRD JOINT (32' FROM ROAD EGDE)

SAWCUT BITUMINOUS STA. 35+07.45

SAWCUT BITUMINOUS STA. 54+01.10

2119 144TH LANE

54+00

00+9

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dave Klugh
DATE 6/29/2022 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
REMOVAL PLAN
EAST HALF OF 145TH AVE & KENYON STREET

DWG: 2105 REMOVAL 2
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 24 OF 51
FILE: 34-2-136

NOTES:
1. ALL DISTURBED AREAS TO BE SEEDED, MULCHED AND FERTILIZED WITHIN 7 DAYS OF ROUGH GRADING.
2. ALL LOCATIONS OF STOCKPILES SHALL BE SUBMITTED FOR THE CITY ENGINEERS APPROVAL PRIOR TO STOCKPILING. ALL EROSION CONTROL FOR STOCKPILES SHALL BE PER BMP'S AND SWPPP.
3. ALL SILT FENCE MUST BE IN PLACE BEFORE ANY LAND IS DISTURBED.
4. EXISTING BITUMINOUS IS APPROXIMATELY 4" WITH 4" CLASS 5.

RECLAIM BITUMINOUS

TREE CLEAING (ACRE)

TREES TO REMOVE
TREES TO REMAIN

0 25 50 100
FEET

N

SALVAGE SIGN C-29

SAWCUT CONCRETE AT SECOND JOINT (18.5' FROM ROAD EDGE)

SALVAGE SUPPORT AND MAILBOX (3)

RECLAIM BITUMINOUS ROAD

2110 146TH AVE

2145 146TH AVE

REMOVE SIGN C-23

REMOVE SIGN C-22

SAWCUT BITUMINOUS STA. 67+46.48

SAWCUT CONCRETE AT SECOND JOINT (29' FROM ROAD EDGE)

PROTECT BRICK PILLARS (2)

SAWCUT BITUMINOUS AT 26' FROM ROAD EDGE

SALVAGE SUPPORT AND MAILBOX (1)

SAWCUT BITUMINOUS AT 25' FROM ROAD EDGE

REMOVE SIGN C-21

2120 146TH AVE

2150 146TH AVE

REMOVE STORM STRUCTURE, PIPE, AND FLARED END

REMOVE STORM PIPE AND FLARED END

PROTECT POSTS AND IRON MARKER

PROTECT BEE HIVES

SALVAGE POSTS

CLEAR AND GRUB

MATCHLINE

021 145TH AVE

2055 145TH AVE

14608 RADISSON ROAD

RADISSON ROAD (CR 52)

GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krueger
DATE 6/29/2022 REG. NO. 48768

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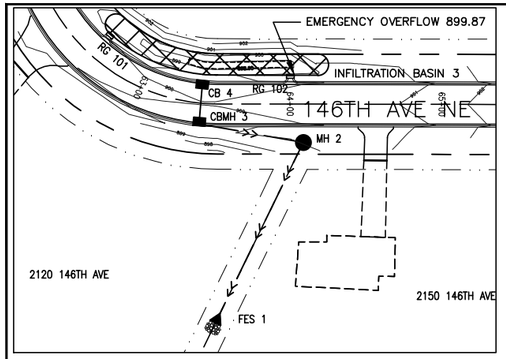
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
REMOVAL PLAN
146TH AVE

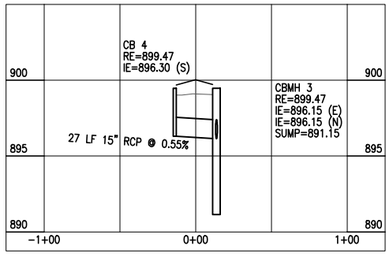
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

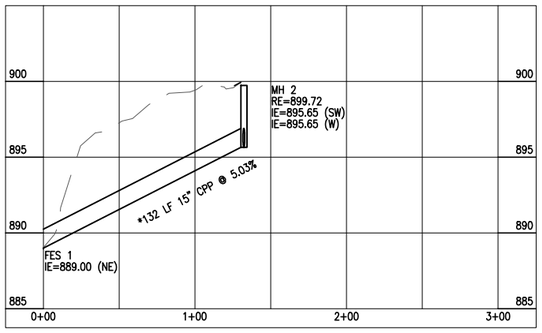
DWG: 2105 REMOVAL 3
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 25 OF 51
FILE: 34-2-137

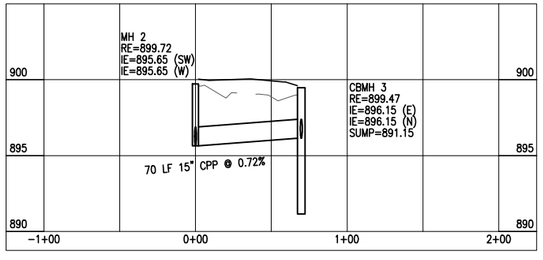


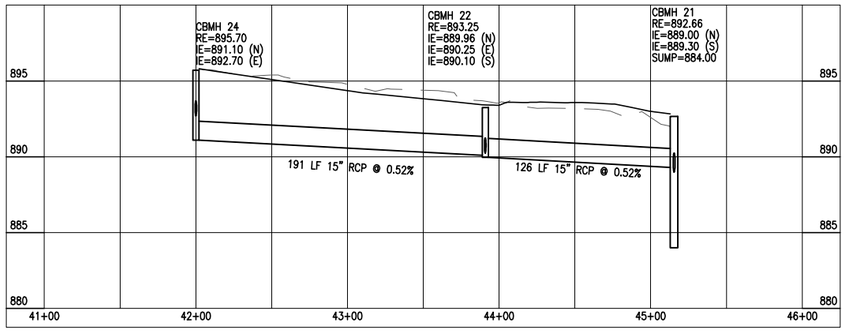
STORM DRAIN

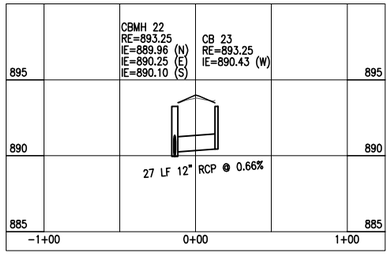
STRUCTURE	STATION	LOCATION	SIZE OF STRUCTURE	DESIGN	TOP OF CASTING OR INLET	INVERT	CASTING ASSEMBLY (NEENAH, EJ, DL)**	TYPE GRATE (NEENAH CASTINGS)	12" R.C.P. LIN FT	15" R.C.P. LIN FT	15" C.P.P. LIN FT	PIPE APRON LIN FT	TRASH GUARD EACH	APRON EACH	FLOWS TO	INLET	% GRADE
RG 101	62+50	LT.	5' x 2.5'	BUNKER	900.08	899.08											
RG 102	64+00	LT.	5' x 2.5'	BUNKER	899.87	898.87											
CB 4	63+40.9	LT.	2' x 3'	RFC-459B	899.47	896.3	R-3246	C									
										27					CBMH 3	896.15	0.55
CBMH 3	63+41.1	RT.	60" ø	RFC-465A3	899.47	896.15	R-3246	C									
											70				MH 2	895.65	0.72
MH 2	64+08.6	RT.	48" ø	RFC-465C	899.72	895.65	R-1733	-									
											130	2.2	1	1	FES 1	889.00	5.03
CB 25	42+00	RT.	2' x 3'	RFC-459B	895.7	892.85	R-3246	L									
									28						CBMH 24	892.70	0.55
CBMH 24	42+00	LT.	48" ø	RFC-465A1	895.7	891.1	R-3246	L									
										191					CBMH 22	890.10	0.52
CB 23	43+90.9	RT.	2' x 3'	RFC-459B	893.25	890.43	R-3246	L									
									27						CBMH 22	890.25	0.66
CBMH 22	43+90.9	LT.	48" ø	RFC-465A1	893.25	889.96	R-3246	L									
										126					CBMH 21	889.30	0.52
CBMH 21	45+15.5	RT.	60" ø	RFC-465A3	892.66	889	R-3246	C									
											169	2.2	1	1	FES 20	888.11	0.52
TOTALS									55	344	369	4.4	2	2			

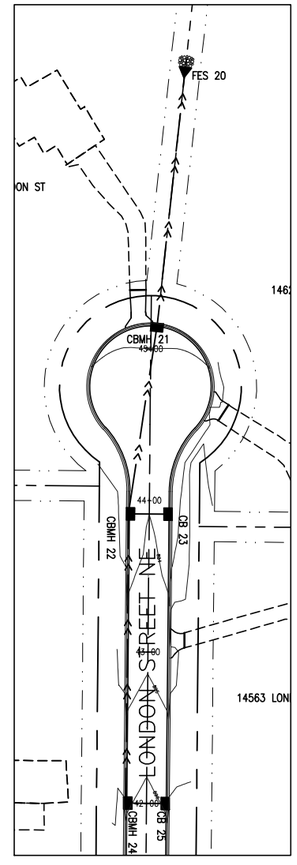


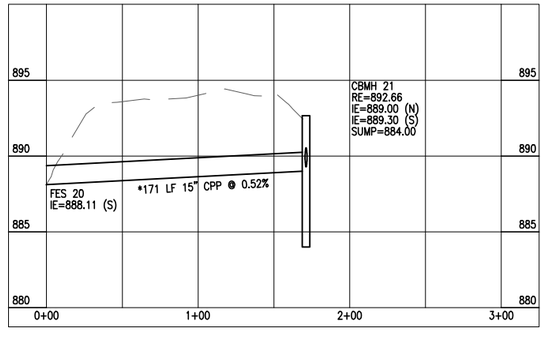


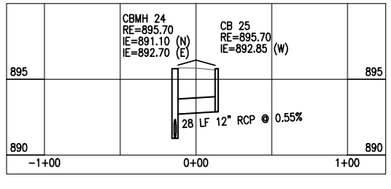






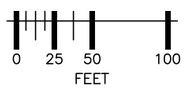






NOTES:

1. ALL DISTURBED AREAS TO BE SEEDED, MULCHED AND FERTILIZED WITHIN 7 DAYS OF ROUGH GRADING.
2. THERE SHALL BE NO STOCKPILING INCLUDING TEMPORARY STOCK PILES OF MATERIALS IN WETLAND AREAS.
3. ALL SILT FENCE MUST BE IN PLACE BEFORE ANY LAND IS DISTURBED.
4. ALL REMOVALS TO BE DISPOSED OF LEGALLY.
5. * PIPE LENGTH INCLUDES APRON.
6. ** NEENAH FOUNDRY R-3246; EAST JORDAN IRON WORKS V-4520; D&L FOUNDRY I-1804.



DATE	REVISION HISTORY
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05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

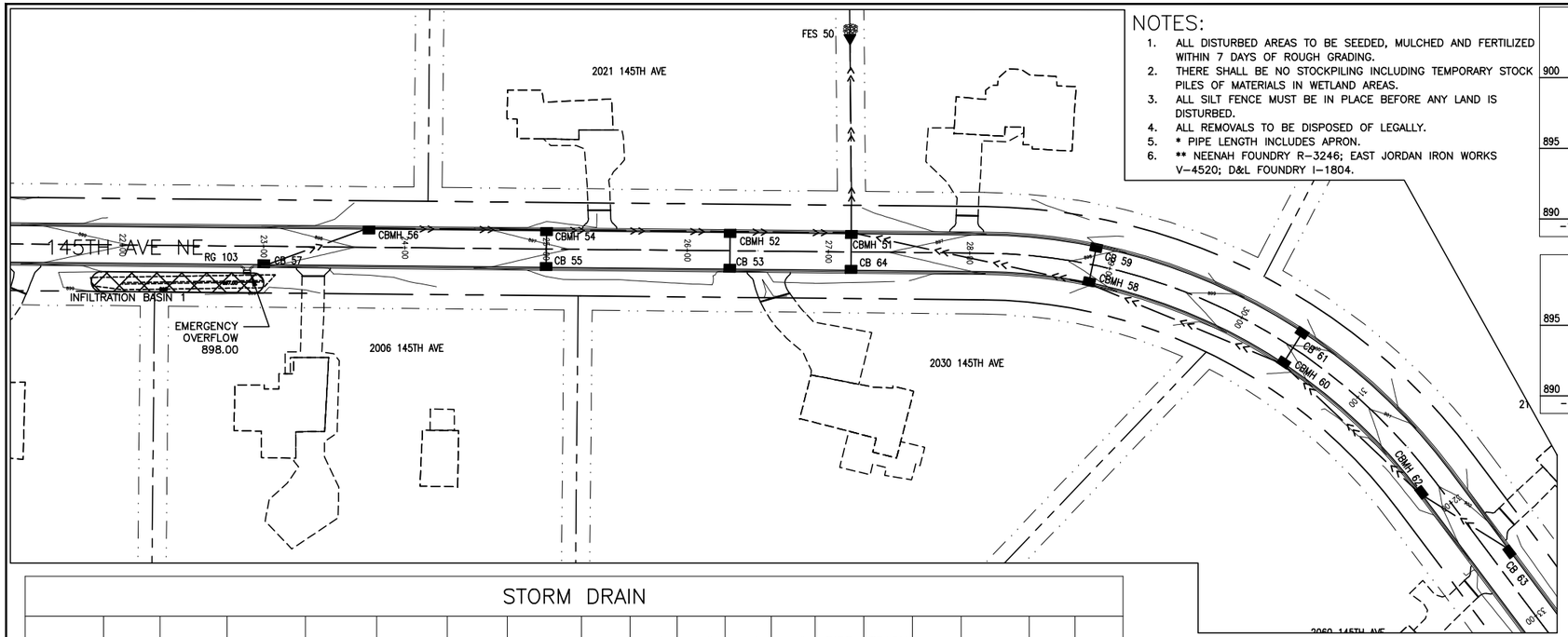
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Kreger
DATE 6/29/2022 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
STORM DETAILS
146TH AVENUE & LONDON STREET

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2105 STORM 1
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 26 OF 51
FILE: 34-2-138



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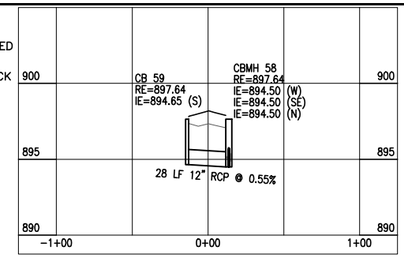
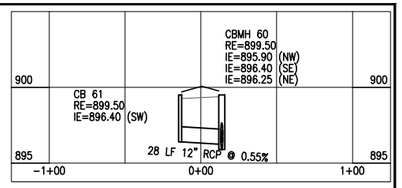
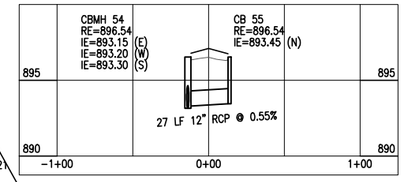
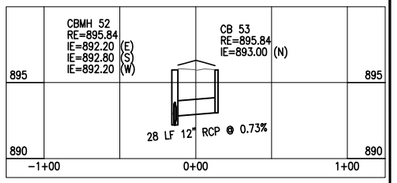
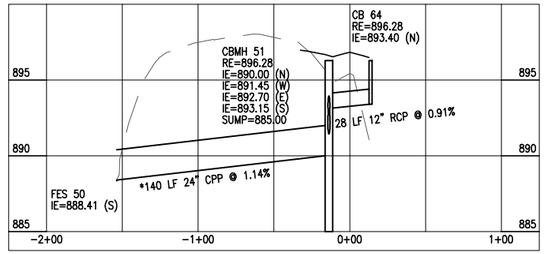
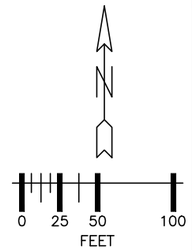






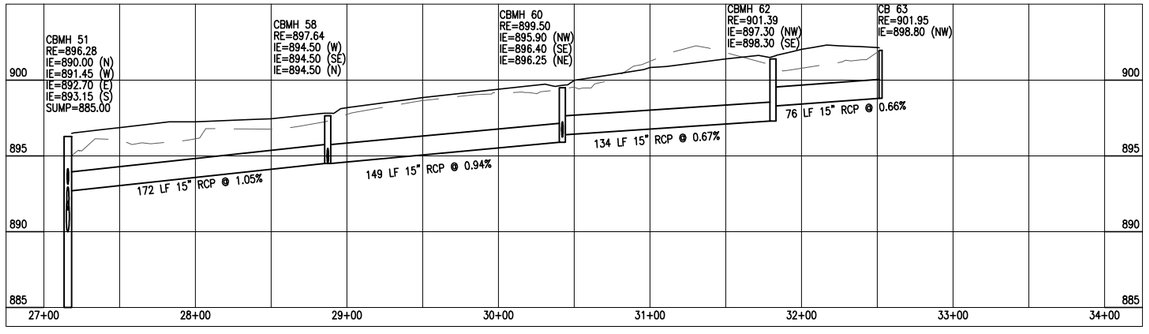


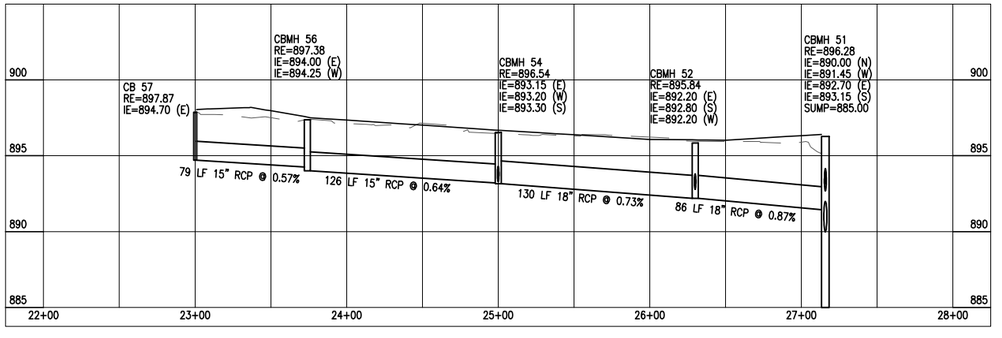




STORM DRAIN

STRUCTURE	STATION	LOCATION	SIZE OF STRUCTURE	DESIGN	TOP OF CASTING OR INLET	INVERT	CASTING ASSEMBLY (NEENAH, EJ, DL)**	TYPE GRATE (NEENAH CASTINGS)	12" R.C.P. LIN FT	15" R.C.P. LIN FT	18" R.C.P. LIN FT	24" C.P.P LIN FT	PIPE APRON LIN FT	TRASH GUARD EACH	APRON EACH	FLOWS TO	INLET	% GRADE
CB 57	23+00	RT.	2' x 3'	RFC-459B	897.87	894.7	R-3246	L										
										79						CBMH 56	894.25	0.57
CBMH 56	23+74.1	LT.	48" ø	RFC-465A1	897.38	894	R-3246	L										
										126						CBMH 54	893.20	0.64
CB 55	25+00	RT.	2' x 3'	RFC-459B	896.54	893.45	R-3246	L										
									27							CBMH 54	893.30	0.55
CBMH 54	25+00	LT.	48" ø	RFC-465A1	896.54	893.15	R-3246	L										
											130					CBMH 52	892.20	0.73
CB 53	26+30	RT.	2' x 3'	RFC-459B	895.84	893	R-3246	C										
									28							CBMH 52	892.80	0.73
CBMH 52	26+30	LT.	48" ø	RFC-465A1	895.84	892.2	R-3246	C										
											86					CBMH 51	891.45	0.87
CB 63	32+52.2	LT.	2' x 3'	RFC-459B	901.95	898.8	R-3246	L										
										76						CBMH 62	898.30	0.66
CBMH 62	31+81.3	RT.	48" ø	RFC-465A1	901.39	897.3	R-3246	L										
										134						CBMH 60	896.40	0.67
CB 61	30+41.5	LT.	2' x 3'	RFC-459B	899.5	896.4	R-3246	L										
									28							CBMH 60	896.25	0.55
CBMH 60	30+42.3	RT.	48" ø	RFC-465A1	899.5	895.9	R-3246	L										
										149						CBMH 58	894.50	0.94
CB 59	28+87.5	LT.	2' x 3'	RFC-459B	897.64	894.65	R-3246	L										
									28							CBMH 58	894.50	0.55
CBMH 58	28+87.4	RT.	48" ø	RFC-465A1	897.64	894.5	R-3246	L										
										172						CBMH 51	892.70	1.05
CB 64	27+15.9	RT.	2' x 3'	RFC-459B	896.28	893.4	R-3246	L										
									28							CBMH 51	893.15	0.91
CBMH 51	27+15.9	LT.	60" ø	RFC-465A3	896.28	890	R-3246	L										
												137	3.4	1	1	FES 50	888.41	1.14
RG 103	23+00	RT.	5'x2.5'	BUNKER	898	897												
TOTALS									139	736	216	137	3.4	1	1			





GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
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Dan Krueger
DATE 6/29/2022 REG. NO. 48768

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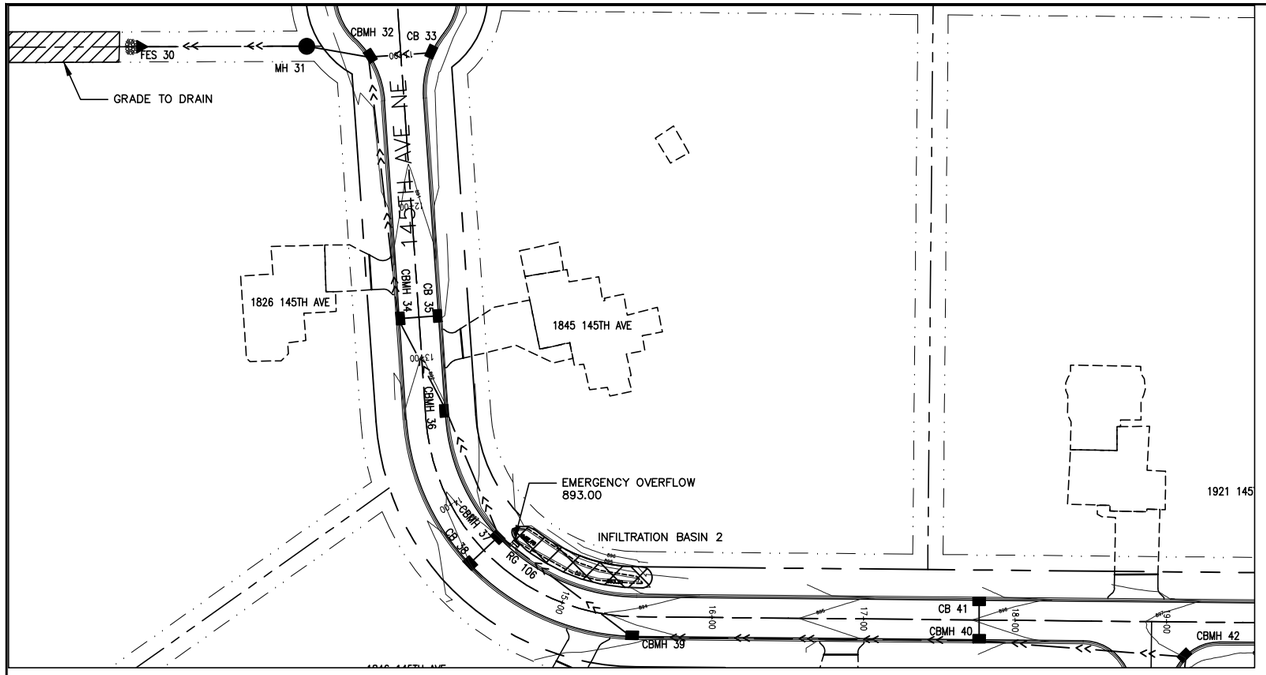
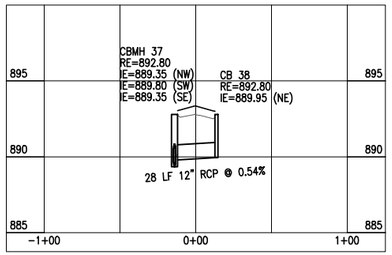
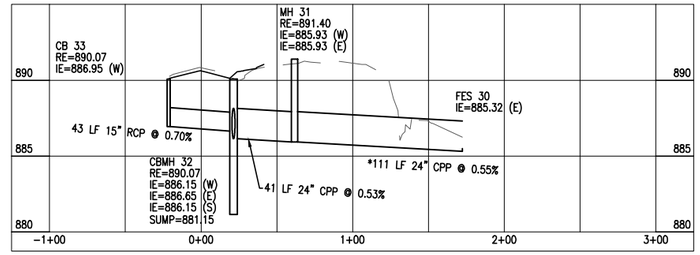
HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
STORM DETAILS
145TH AVENUE - EAST OF LONDON STREET

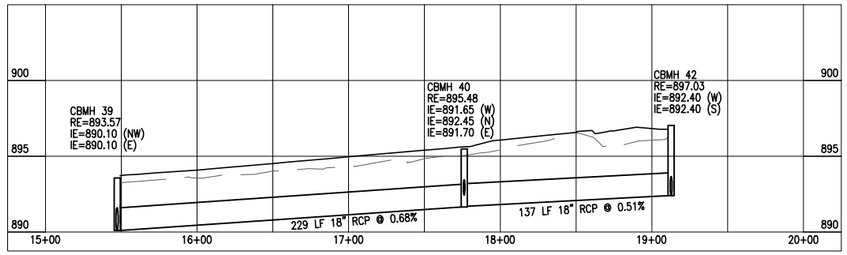
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

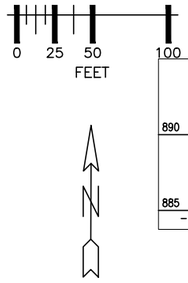
DWG: 2105 STORM 2
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 27 OF 51
FILE: 34-2-139

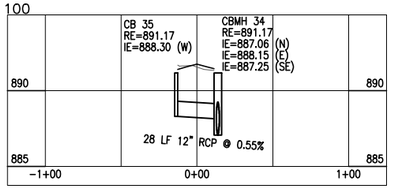












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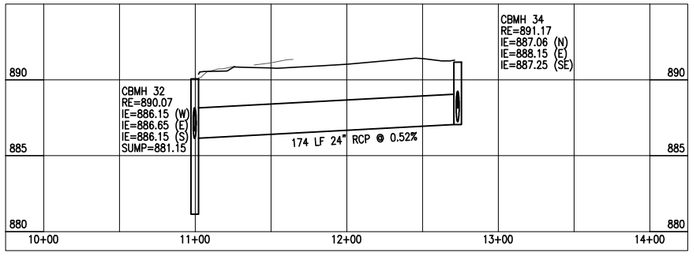
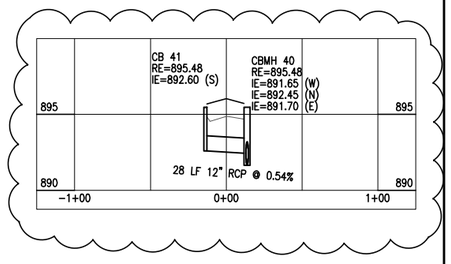
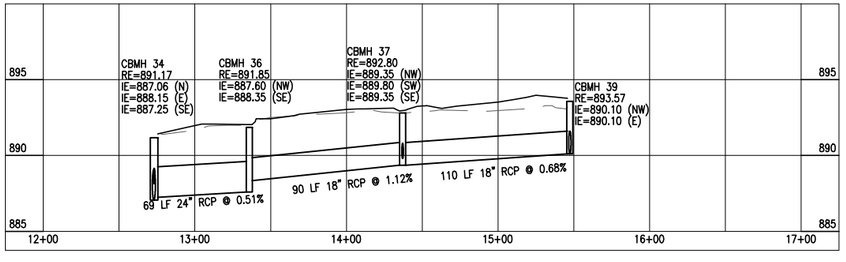
STORM DRAIN

STRUCTURE	STATION	LOCATION	SIZE OF STRUCTURE	DESIGN	TOP OF CASTING OR INLET	INVERT	CASTING ASSEMBLY (NEENAH, EJ, DL)**	TYPE GRATE (NEENAH CASTINGS)	12" R.C.P. LIN FT	15" R.C.P. LIN FT	18" R.C.P. LIN FT	24" R.C.P. LIN FT	24" C.P.P. LIN FT	PIPE APRON LIN FT	TRASH GUARD EACH	APRON EACH	FLOWS TO	INLET	% GRADE
CBMH 42	19+12.8	RT.	48" ø	RFC–465A1	897.03	892.4	R–3246	L											
											137						CBMH 40	891.70	0.51
CB 41	17+76	LT.	2' x 3'	RFC–459B	895.48	892.6	R–3246	L											
									28								CBMH 40	892.45	0.54
CBMH 40	17+76.2	RT.	48" ø	RFC–465A1	895.48	891.65	R–3246	L											
											229						CBMH 39	890.10	0.68
CBMH 39	15+47.4	RT.	48" ø	RFC–465A1	893.57	890.1	R–3246	L											
											110						CBMH 37	889.35	0.68
CB 38	14+37	RT.	2' x 3'	RFC–459B	892.8	889.95	R–3246	L											
									28								CBMH 37	889.80	0.54
CBMH 37	14+37	LT.	48" ø	RFC–465A1	892.8	889.35	R–3246	L											
											90						CBMH 36	888.35	1.12
CBMH 36	13+35.9	LT.	48" ø	RFC–465A1	891.85	887.6	R–3246	L											
												69					CBMH 34	887.25	0.51
CB 35	12+73.1	LT.	2' x 3'	RFC–459B	891.17	888.3	R–3246	L											
									28								CBMH 34	888.15	0.55
CBMH 34	12+73.2	RT.	60" ø	RFC–465A1	891.17	887.06	R–3246	L											
												174					CBMH 32	886.15	0.52
CB 33	10+99.7	LT.	2' x 3'	RFC–459B	890.07	886.95	R–3246	c											
										43							CBMH 32	886.65	0.7
CBMH 32	10+99.6	RT.	60" ø	RFC–465A3	890.07	886.15	R–3246	c											
													41				MH 31	885.93	0.53
MH 31	10+89.7	RT.	48" ø	RFC–465C	891.4	885.93	R–1733	–											
													107	3.4	1	1	FES 30	885.32	0.55
RG 106	14+50	LT.	5' x 2.5'	BUNKER	893	892													
TOTALS									84	43	566	243	148	3.4	1	1			







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DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

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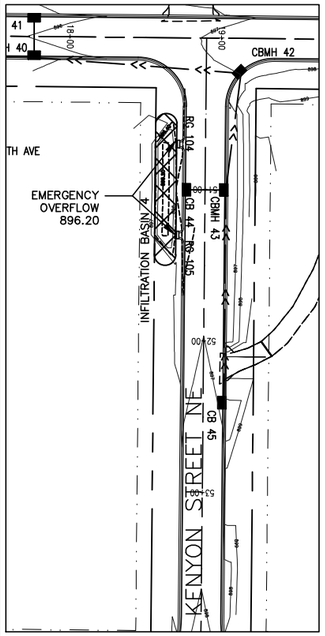
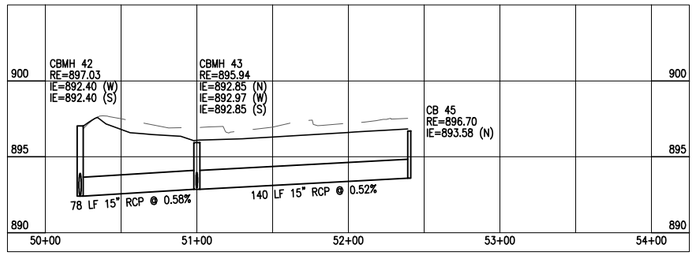
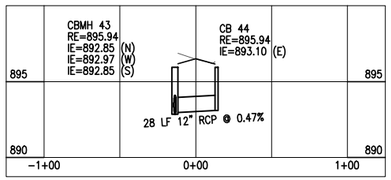
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
STORM DETAILS
145TH AVENUE – WEST OF LONDON STREET

DWG: 2105 STORM 3
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 28 OF 51
FILE: 34–2–140

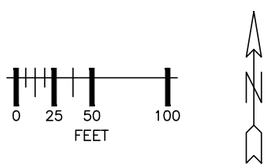






STORM DRAIN

STRUCTURE	STATION	LOCATION	SIZE OF STRUCTURE	DESIGN	TOP OF CASTING OR INLET	INVERT	CASTING ASSEMBLY (NEENAH, EJ, DL)**	TYPE GRATE (NEENAH CASTINGS)	12" R.C.P.	15" R.C.P.	PIPE APRON	TRASH GUARD	APRON	FLOWS TO	INLET	% GRADE
									LIN FT	LIN FT	LIN FT	EACH	EACH			
CB 45	52+40.3	LT.	2' x 3'	RFC-459B	896.7	893.58	R-3246	L								
										140				CBMH 43	892.85	0.52
CB 44	51+00.1	RT.	2' x 3'	RFC-459B	895.94	893.1	R-3246	C								
									28					CBMH 43	892.97	0.47
CBMH 43	51+00	LT.	48" ø	RFC-465A1	895.94	892.85	R-3246	C								
										78				CBMH 42	892.40	0.58
RG 104	50+70	RT.	5' x 2.5'	BUNKER	896.2	895.2										
RG 105	51+30	RT.	5' x 2.5'	BUNKER	896.2	895.2										
TOTALS									28	218						



NOTES:

1. ALL DISTURBED AREAS TO BE SEEDED, MULCHED AND FERTILIZED WITHIN 7 DAYS OF ROUGH GRADING.
2. THERE SHALL BE NO STOCKPILING INCLUDING TEMPORARY STOCK PILES OF MATERIALS IN WETLAND AREAS.
3. ALL SILT FENCE MUST BE IN PLACE BEFORE ANY LAND IS DISTURBED.
4. ALL REMOVALS TO BE DISPOSED OF LEGALLY.
5. * PIPE LENGTH INCLUDES APRON.
6. ** NEENAH FOUNDRY R-3246; EAST JORDAN IRON WORKS V-4520; D&L FOUNDRY I-1804.

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.

DATE 6/29/2022 REG. NO. 48768

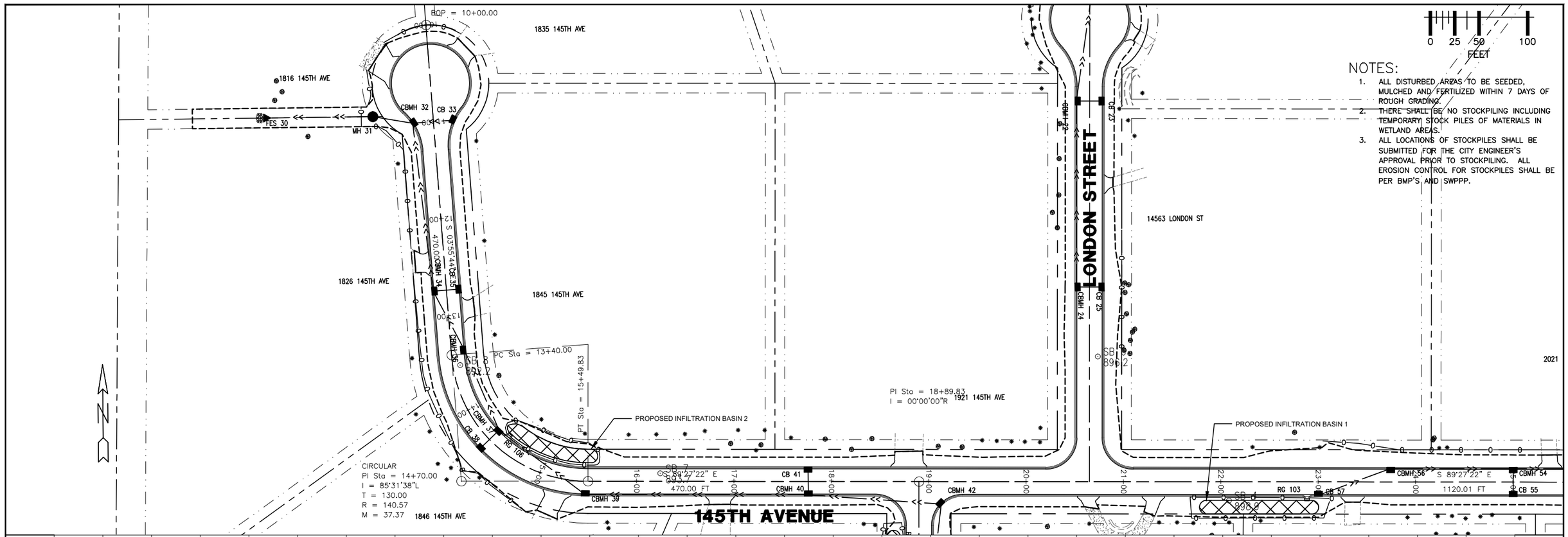
RFC ENGINEERING, INC.
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
STORM DETAILS
KENYON STREET

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: 2105 STORM 4
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 29 OF 51
FILE: 34-2-141



NOTES:

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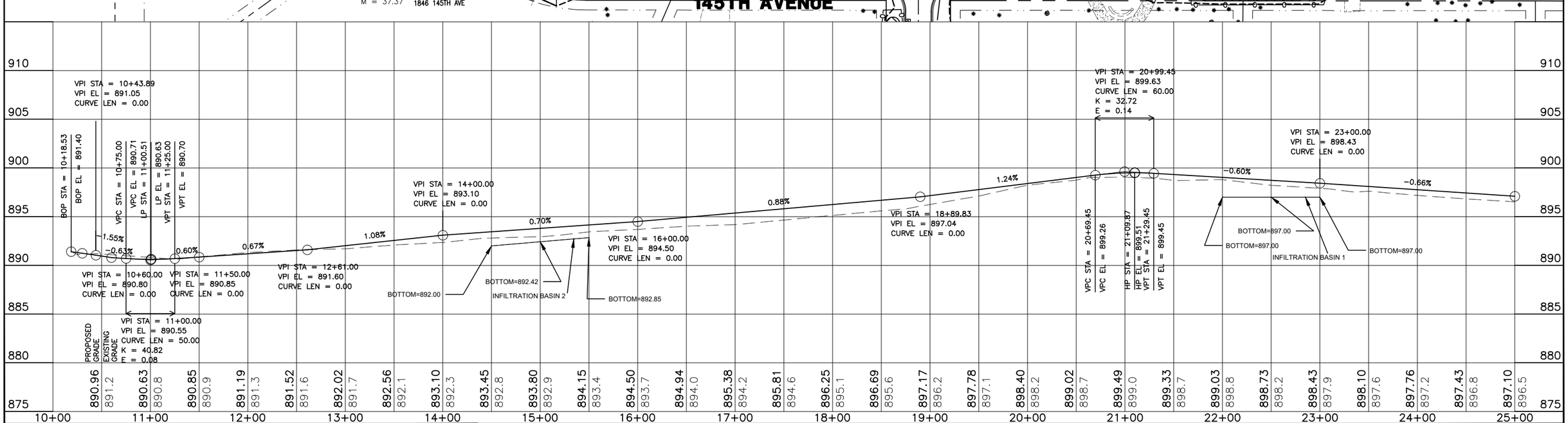

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:35

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krughn
DATE 6/29/2022 REG. NO. 48768

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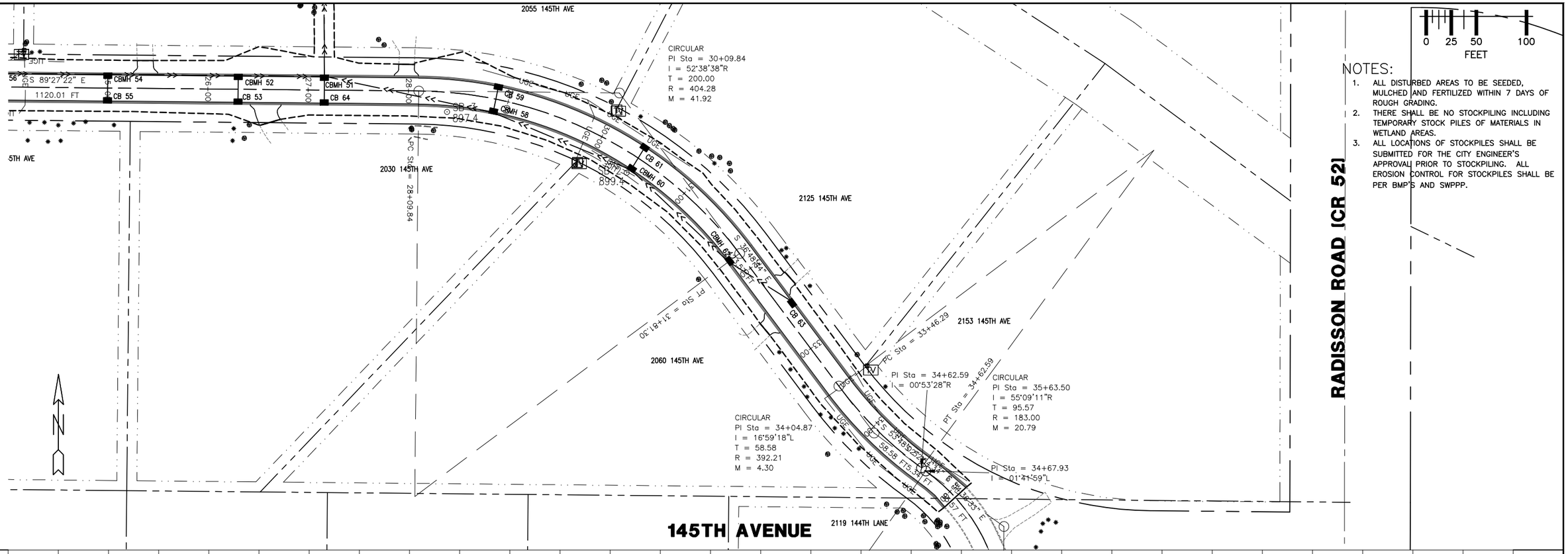
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
145TH AVENUE
PLAN AND PROFILE

DWG:	RCP03021
DATE:	06/29/22
JOB NUMBER:	2105
SHEET:	30 OF 51
FILE:	34-2-142



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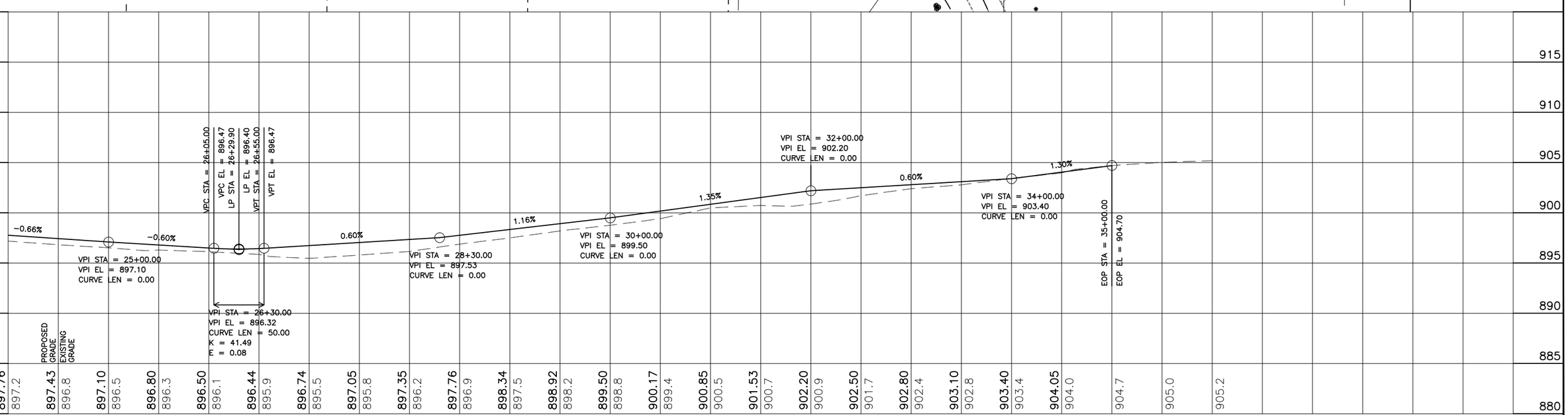

GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:35

UTILITIES:
CENTURYLINK (763) 712-5017
CENTERPOINT ENERGY (763) 323-2760
COMCAST (952) 607-4078
CONNEXUS ENERGY (763) 323-4268
XCEL ENERGY (612) 526-4508

DATE	REVISION HISTORY
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05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dan Krueger
DATE 6/29/2022 REG. NO. 48768

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Ham Lake, MN 55304
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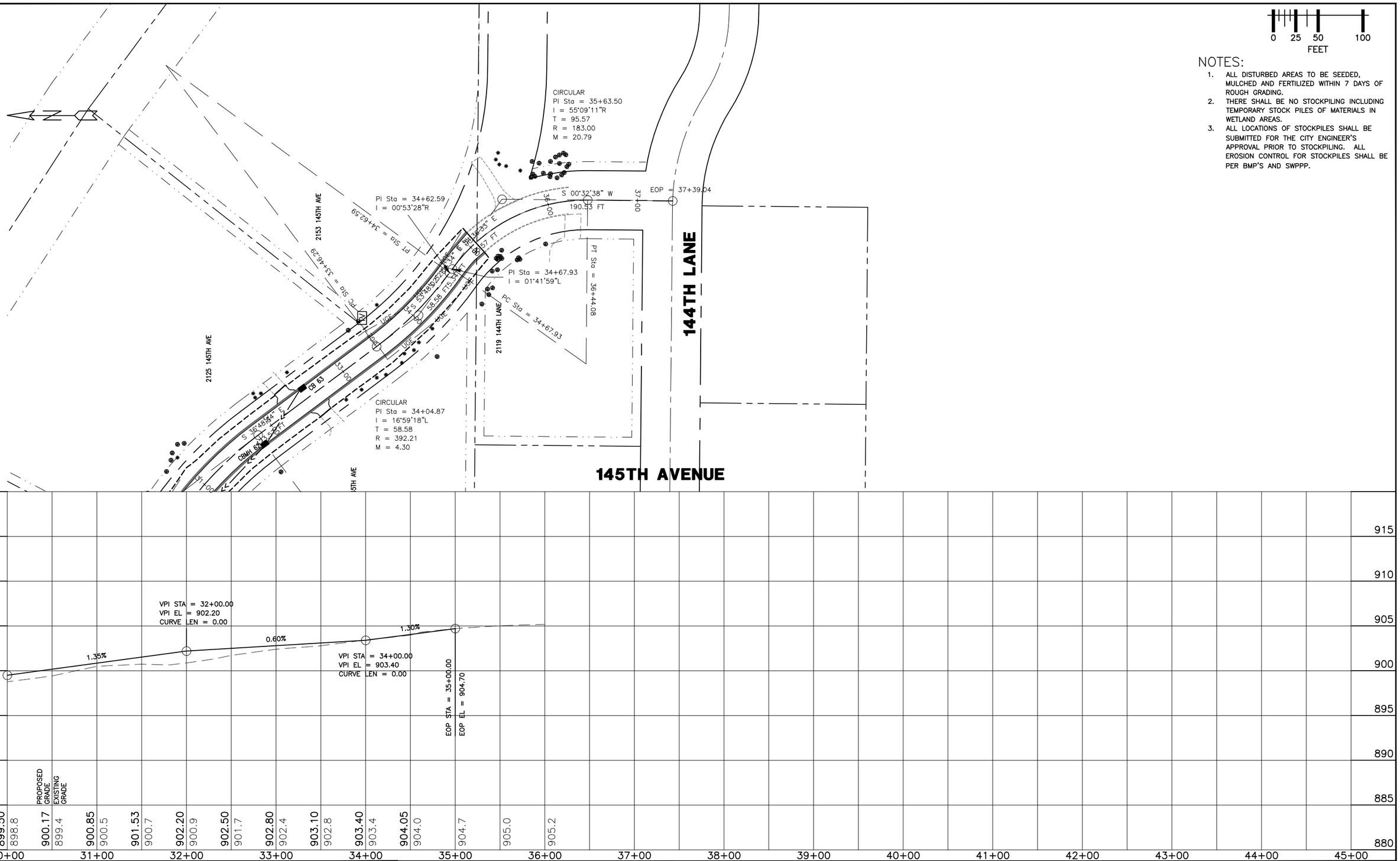
Fax 763-862-8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
145TH AVENUE
PLAN AND PROFILE

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: RCP01021
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 31 OF 51
FILE: 34-2-143



COPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:35

UTILITIES:
CENTURYLINK (763) 712-5017
CENTERPOINT ENERGY (763) 323-2760
COMCAST (952) 607-4078
CONNEXUS ENERGY (763) 323-4268
XCEL ENERGY (612) 526-4508

DATE	REVISION HISTORY
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Dan Kugler
DATE 6/29/2022 REG. NO. 48768

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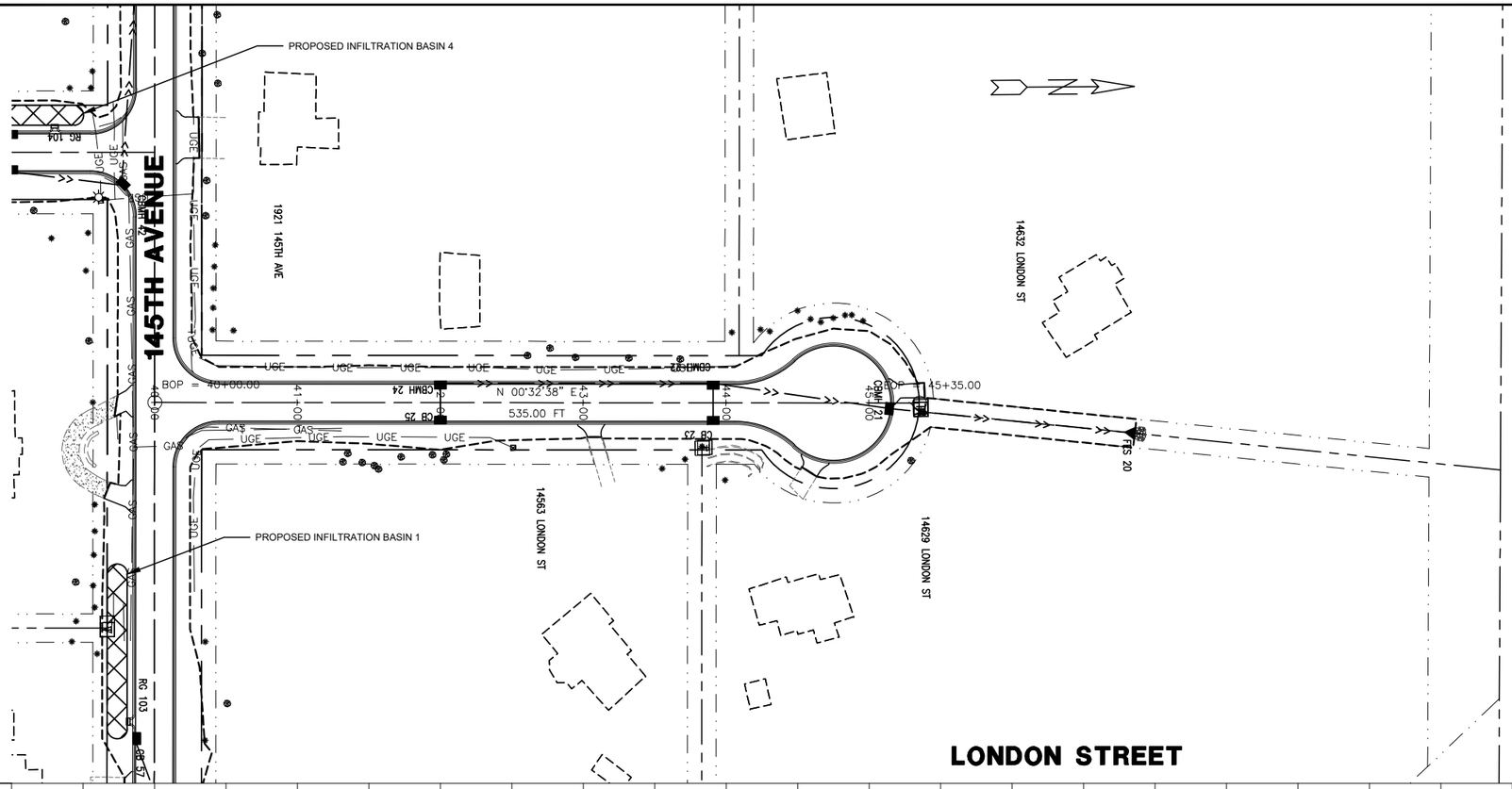
Fax 763-862-8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
145TH AVENUE
PLAN AND PROFILE

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: RCP02021
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 32 OF 51
FILE: 34-2-144



0 25 50 100
FEET

NOTES:

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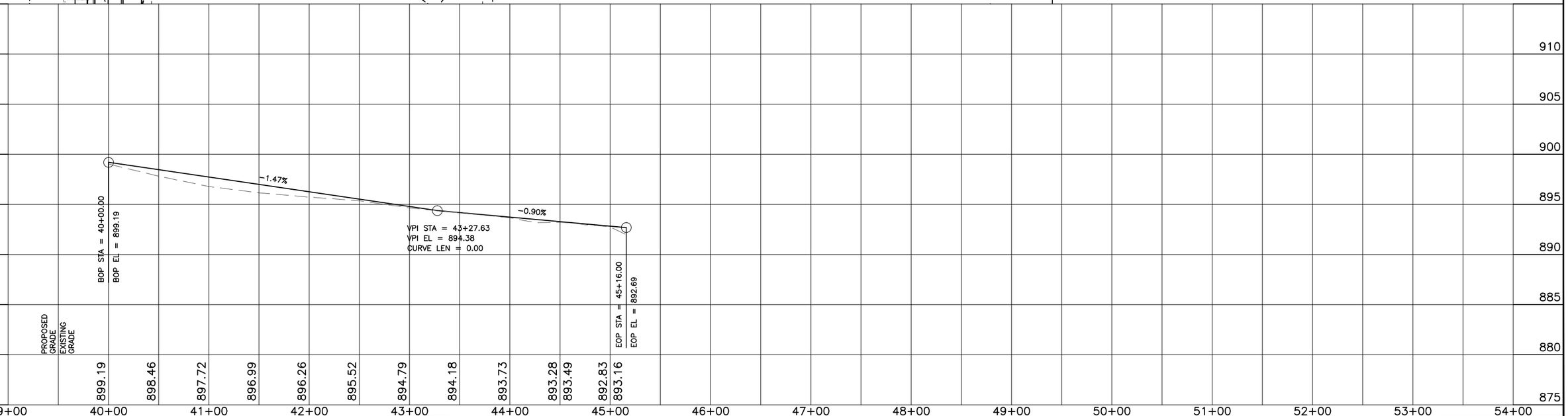

GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:35

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dan Ringler
DATE 6/29/2022 REG. NO. 48768

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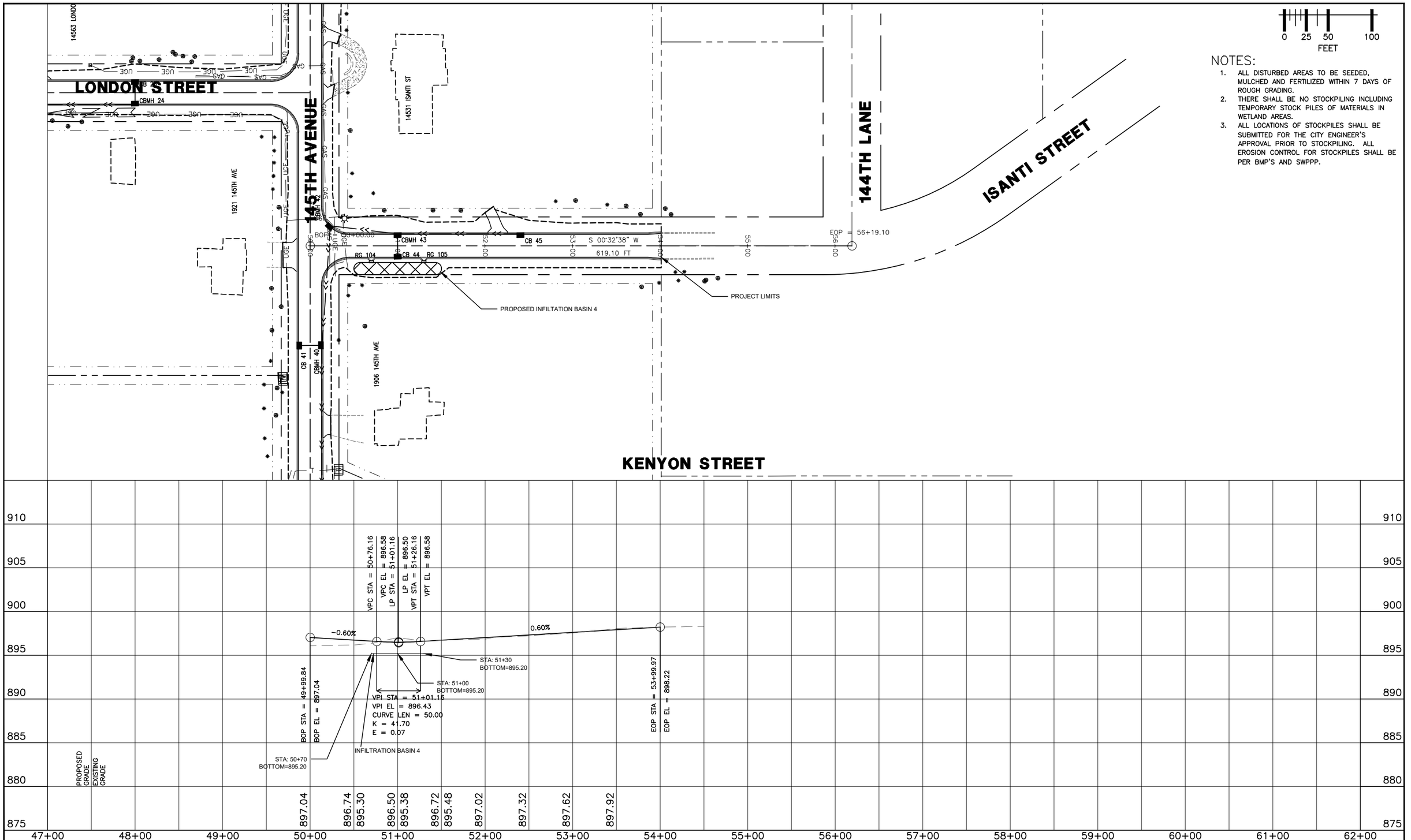
Fax 763-862-8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
LONDON STREET
PLAN AND PROFILE

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: RCP01022
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 33 OF 51
FILE: 34-2-145



GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:35

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
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Dan Krueger
DATE 6/29/2022 REG. NO. 48768

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Consulting Engineers

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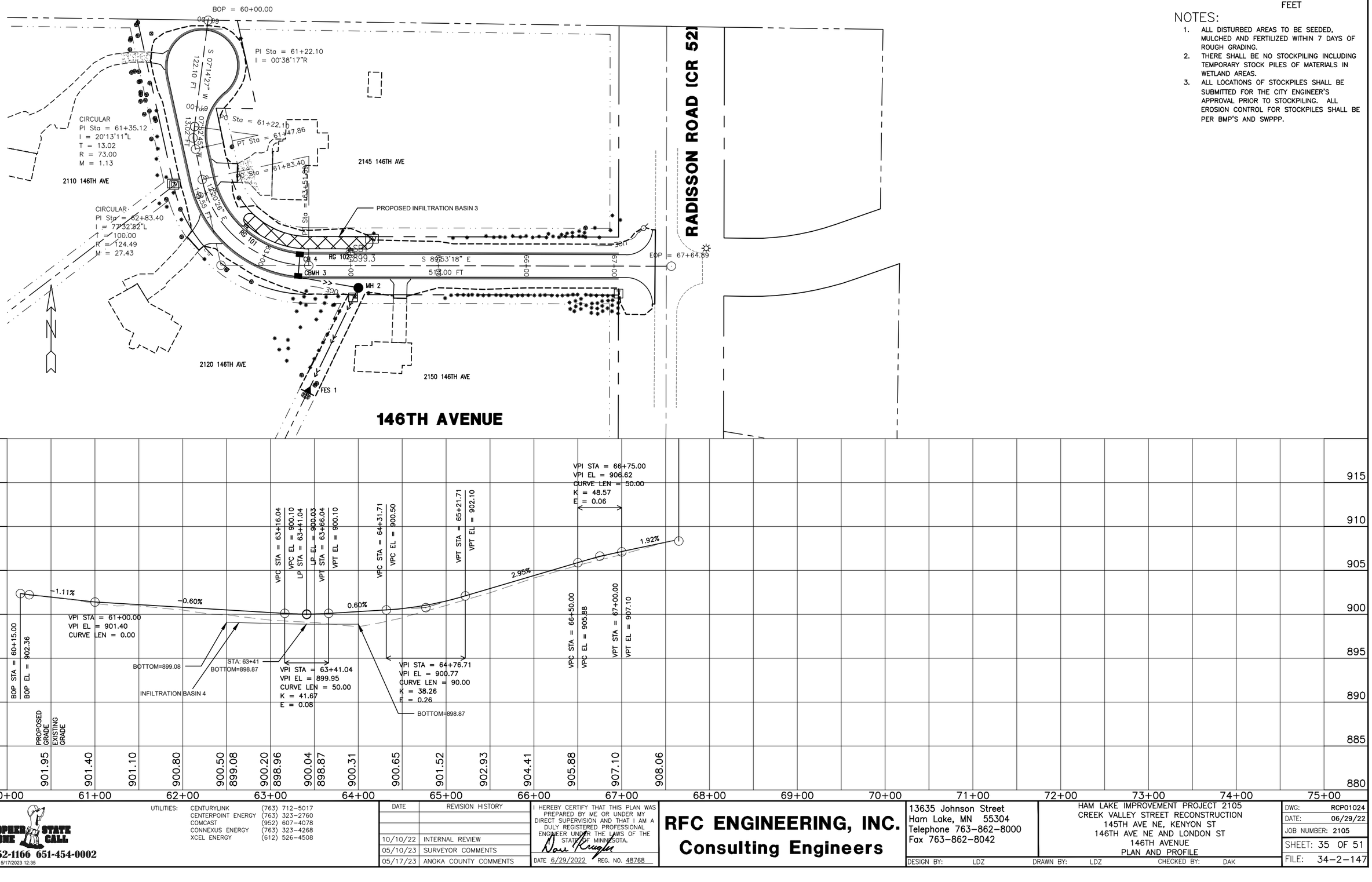
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
KENYON STREET
PLAN AND PROFILE

DWG:	RCP01023
DATE:	06/29/22
JOB NUMBER:	2105
SHEET:	34 OF 51
FILE:	34-2-146



SOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:35

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dan Kruglas
DATE 6/29/2022 REG. NO. 48768

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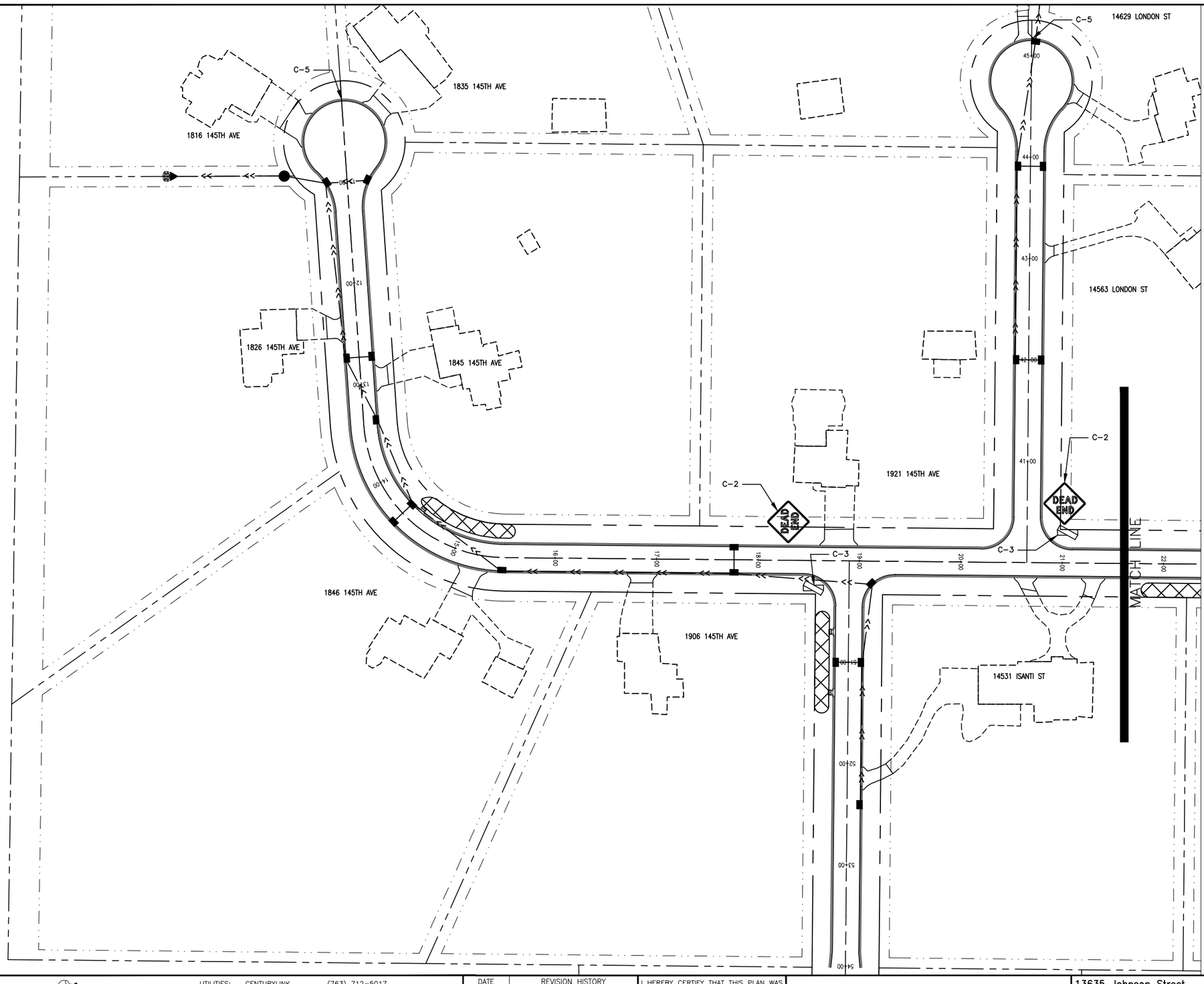
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
146TH AVENUE
PLAN AND PROFILE

DWG: RCP01024
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 35 OF 51
FILE: 34-2-147



NOTE:
1. LOCATION OF SIGNS PER MnMUTCD SPECIFICATIONS.

0 25 50 100
FEET

SOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
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XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
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05/17/23	ANOKA COUNTY COMMENTS

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Dave Kruglen
DATE 6/29/2022 REG. NO. 48768

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Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
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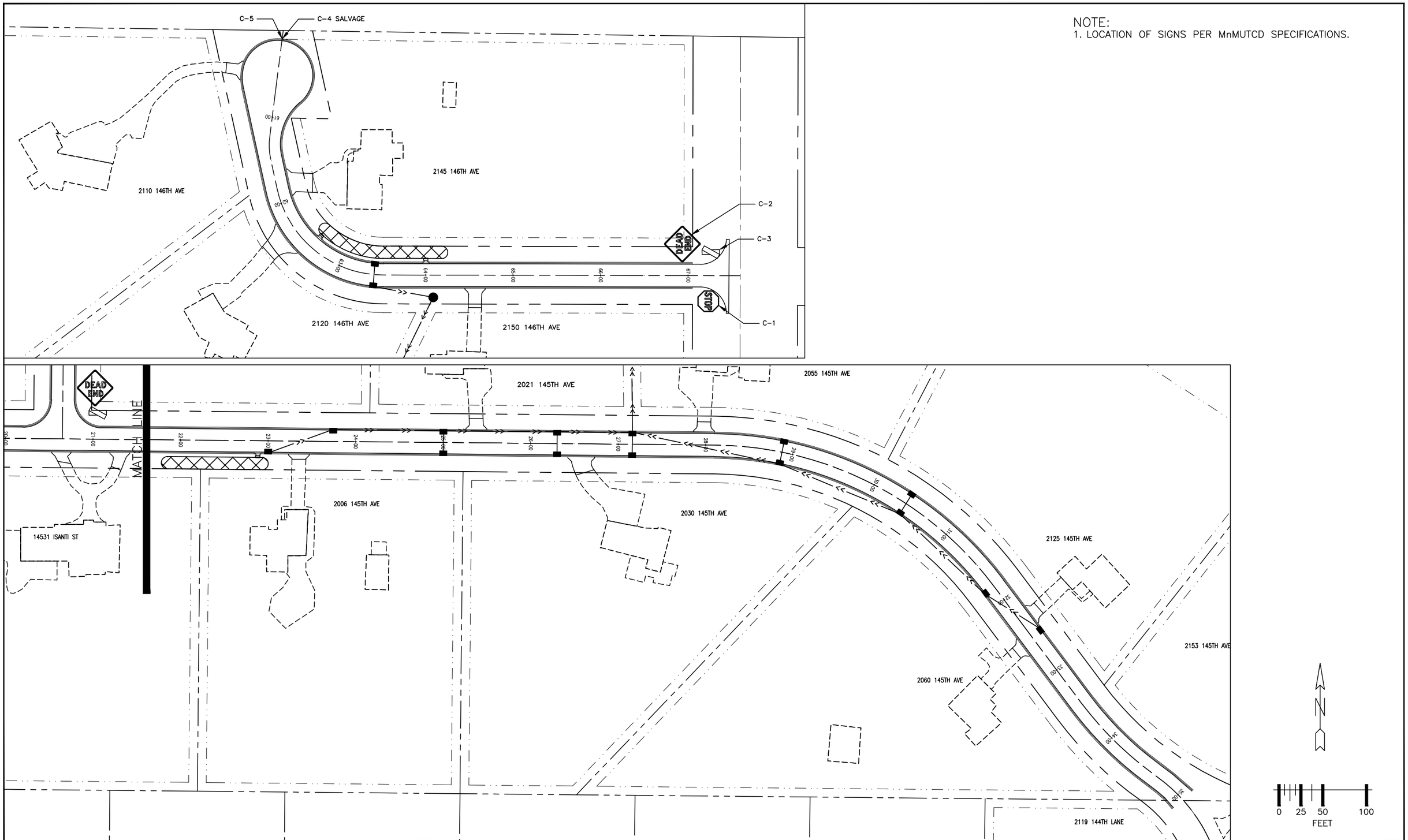
Fax 763-862-8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
SIGNING PLAN

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG:	2105 SIGN 1
DATE:	06/29/22
JOB NUMBER:	2105
SHEET:	36 OF 51
FILE:	34-2-148

NOTE:
1. LOCATION OF SIGNS PER MnMUTCD SPECIFICATIONS.



GOPHER STATE ONE CALL
800-252-1166 651-454-0002

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
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05/17/23	ANOKA COUNTY COMMENTS

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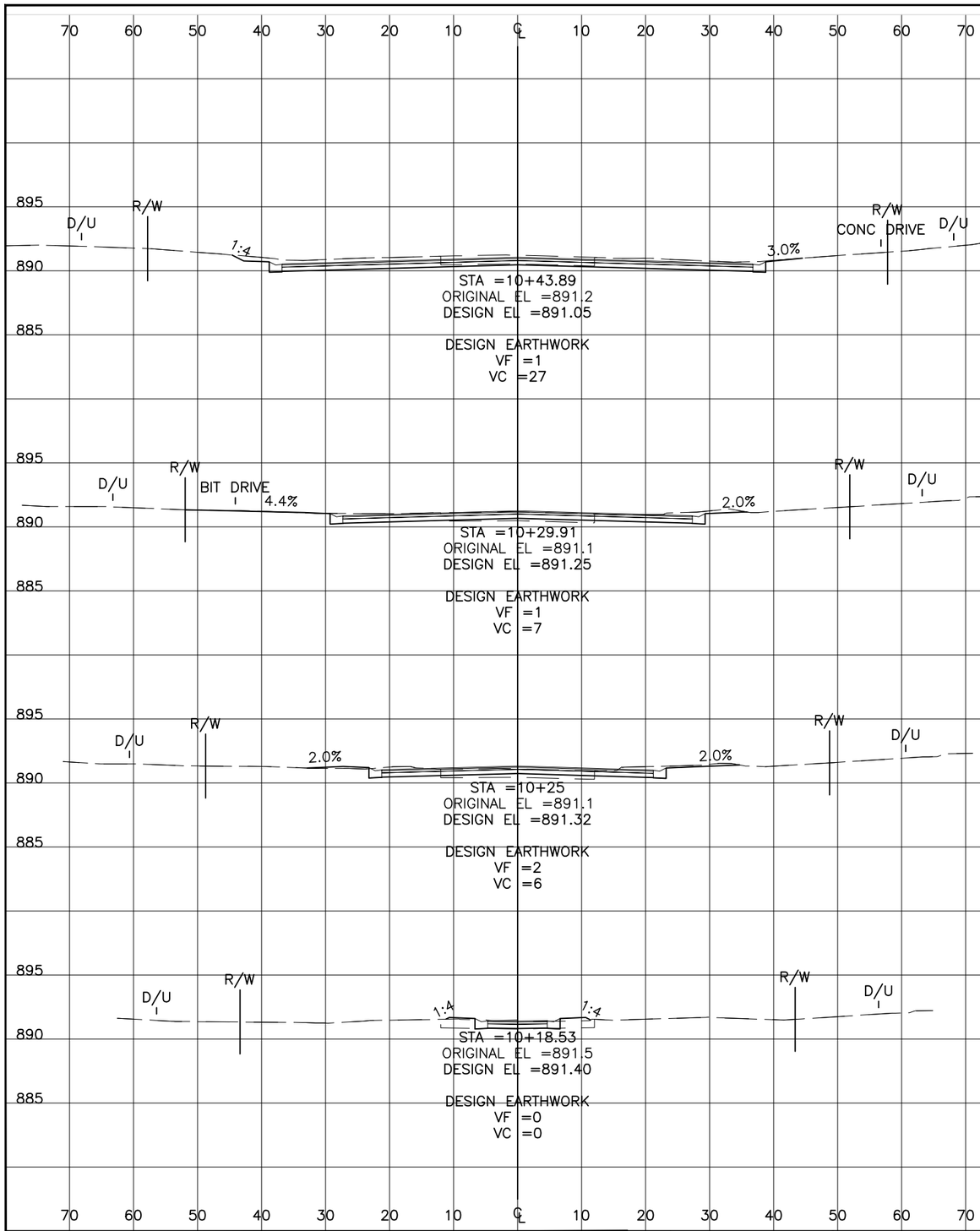
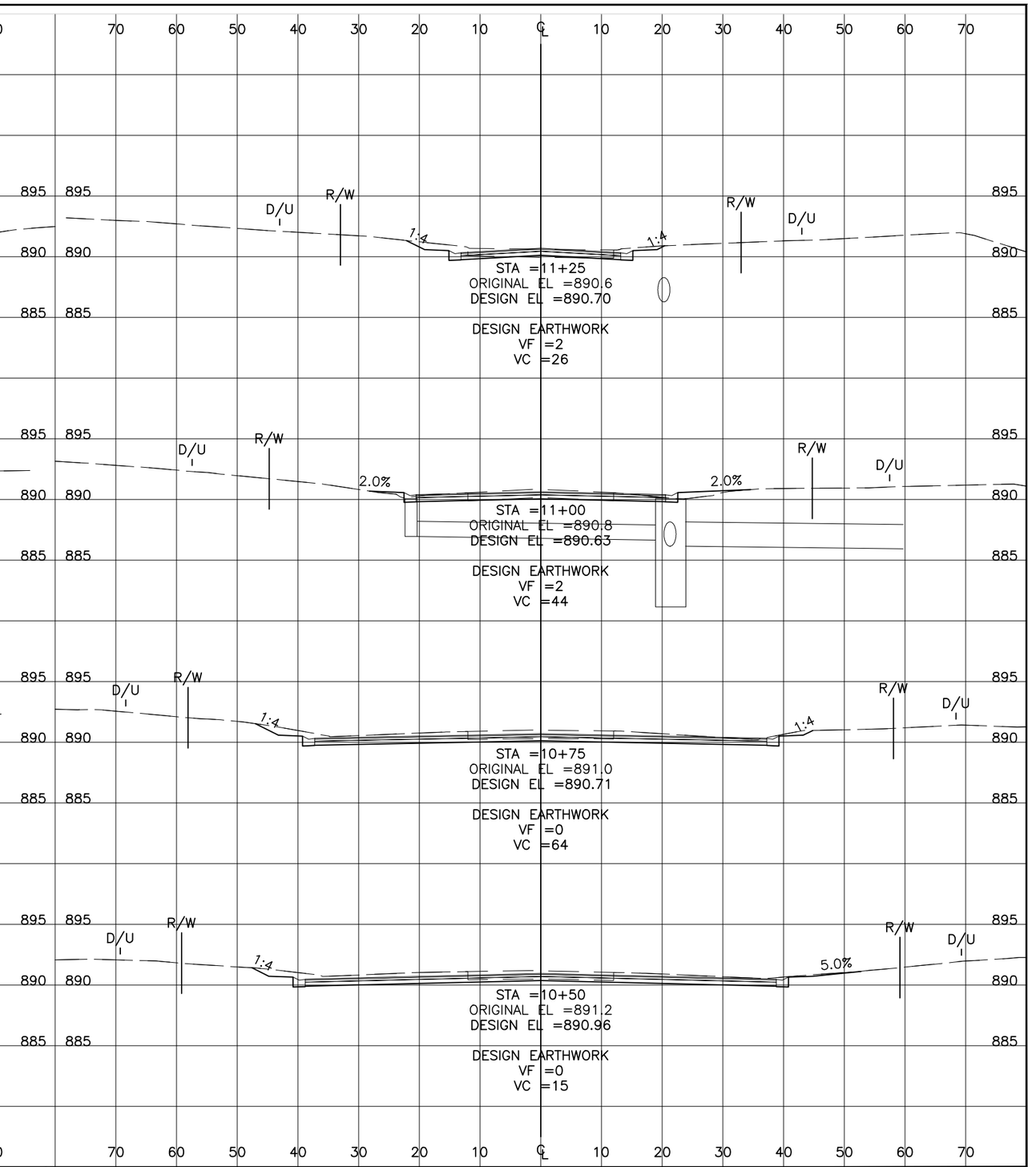
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
SIGNING PLAN

DWG: 2105 SIGN 2
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 37 OF 51
FILE: 34-2-149





GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:35

UTILITIES:

CENTURYLINK	(763) 712-5017
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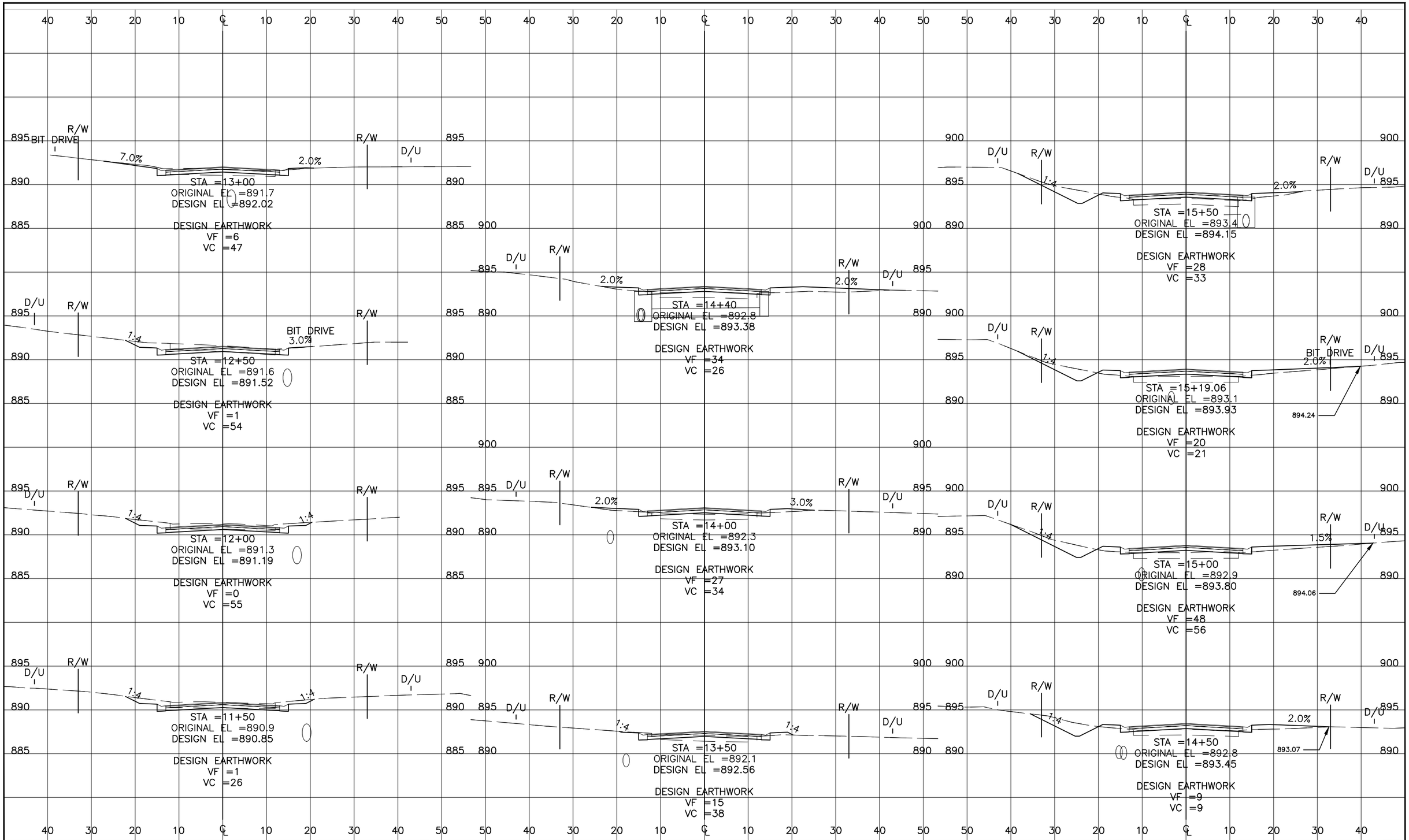
HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
145TH AVENUE
CROSS SECTIONS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: RC001021
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 38 OF 51
FILE: 34-2-150



GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:36

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
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10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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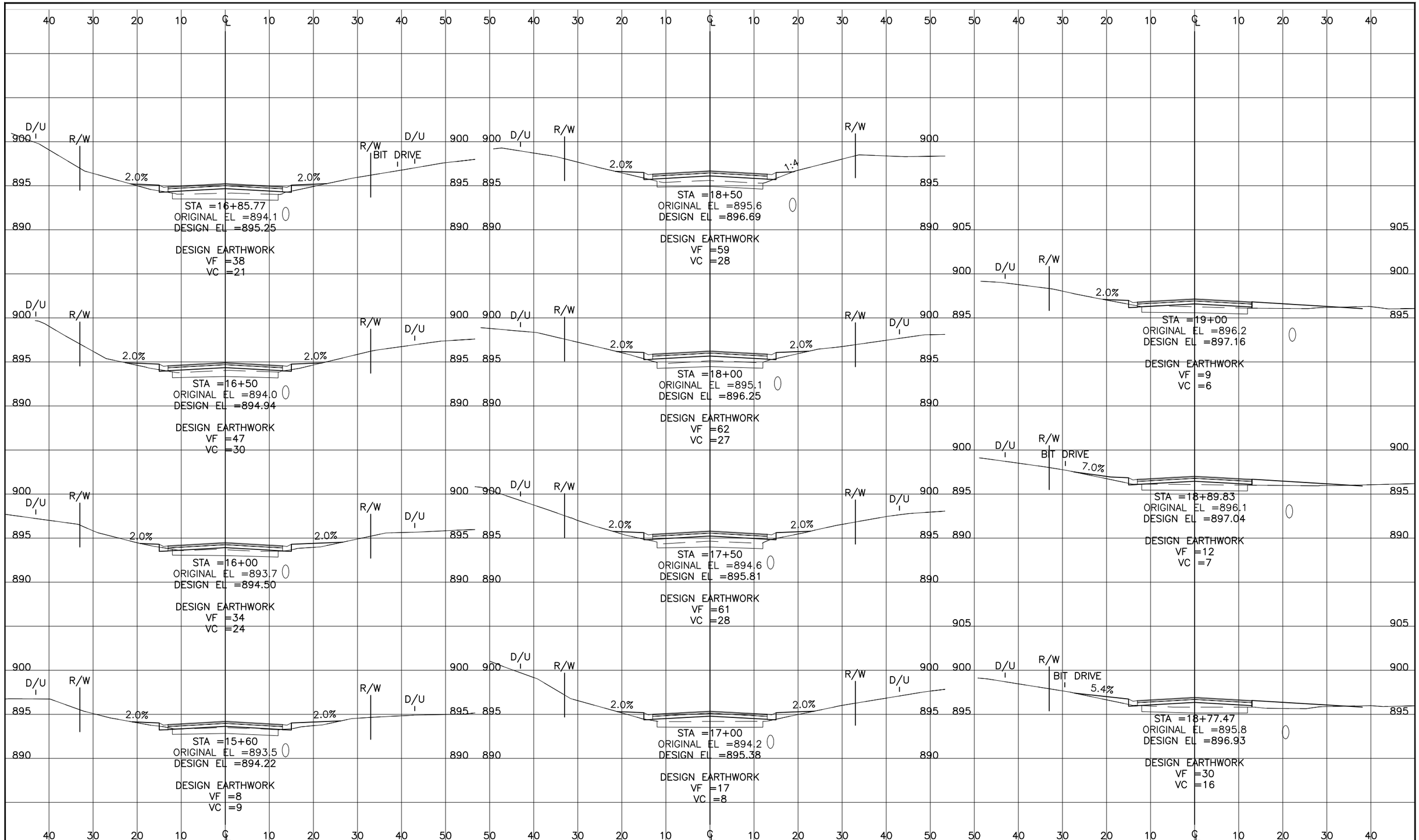
145TH AVENUE
CROSS SECTIONS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG:	RC002021
DATE:	06/29/22
JOB NUMBER:	2105
SHEET:	39 OF 51
FILE:	34-2-151



GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:36

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krugler
DATE 6/29/2022 REG. NO. 48768

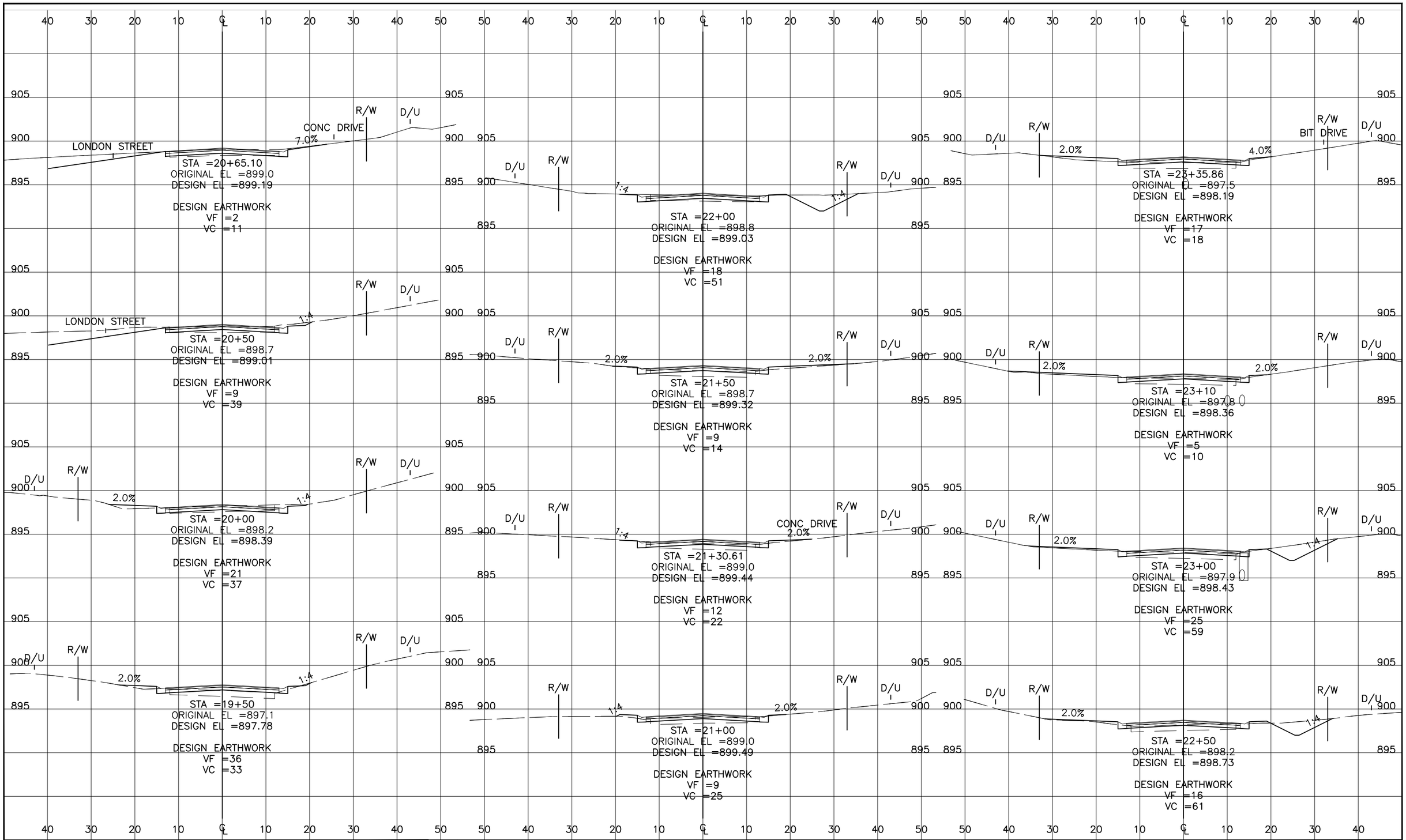
RFC ENGINEERING, INC.
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
145TH AVENUE
CROSS SECTIONS

DWG: RC003021
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 40 OF 51
FILE: 34-2-152



DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

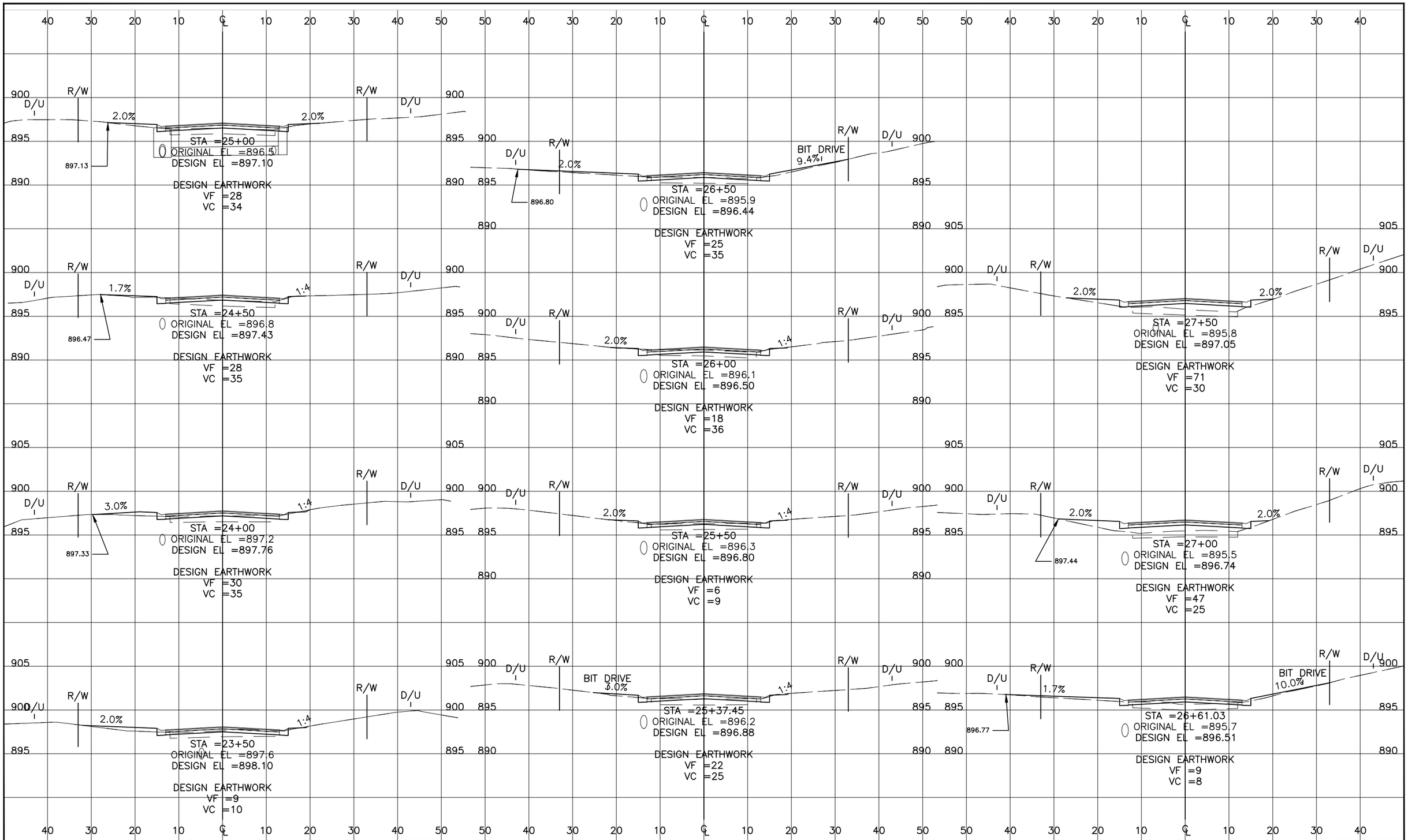
I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krughe
DATE 6/29/2022 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
145TH AVENUE
CROSS SECTIONS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: RC004021
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 41 OF 51
FILE: 34-2-153



GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:36

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dan Krughn
DATE 6/29/2022 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
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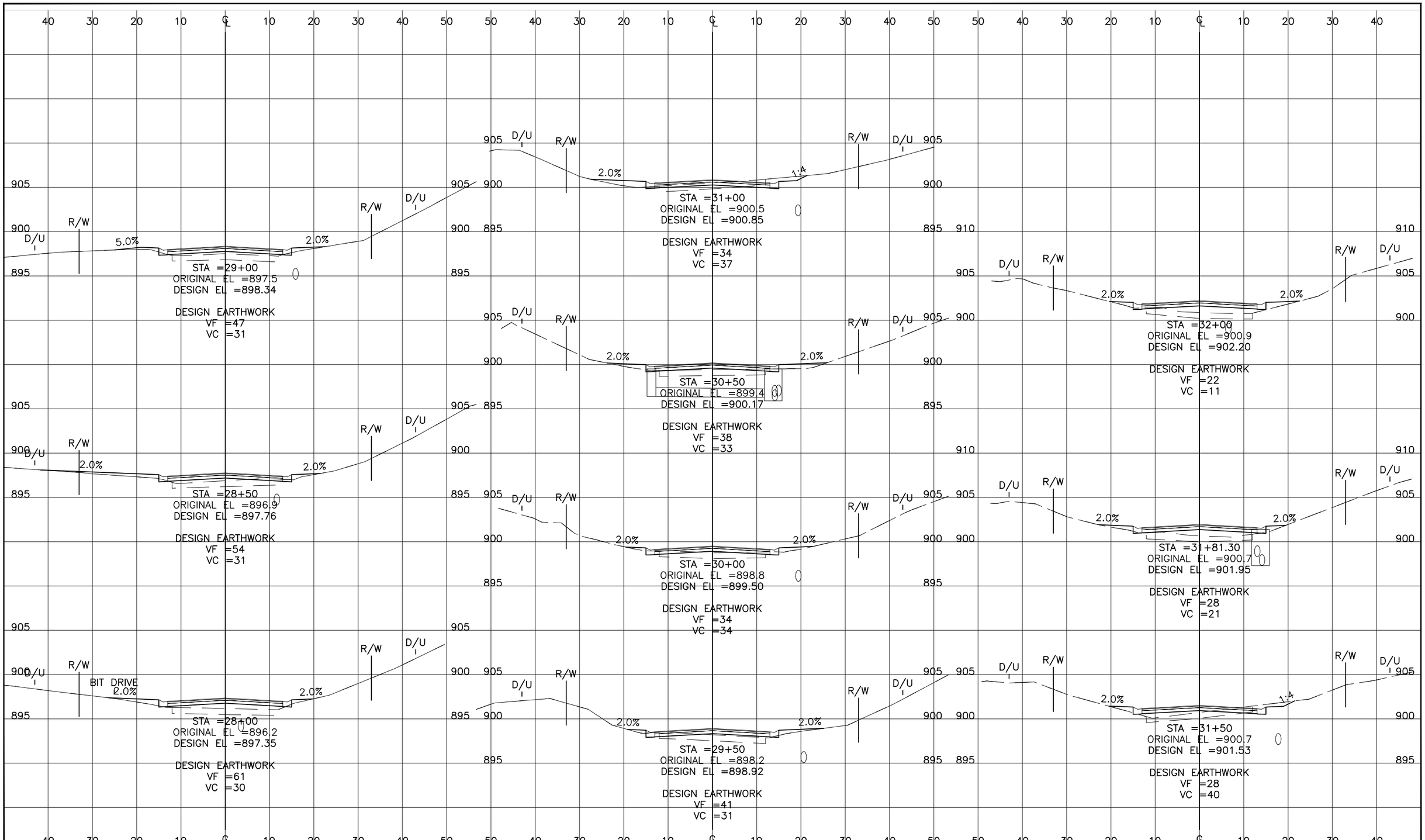
Fax 763-862-8042

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
145TH AVENUE
CROSS SECTIONS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG:	RC005021
DATE:	06/29/22
JOB NUMBER:	2105
SHEET:	42 OF 51
FILE:	34-2-154



SOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:36

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dave Ruglas
DATE 6/29/2022 REG. NO. 48768

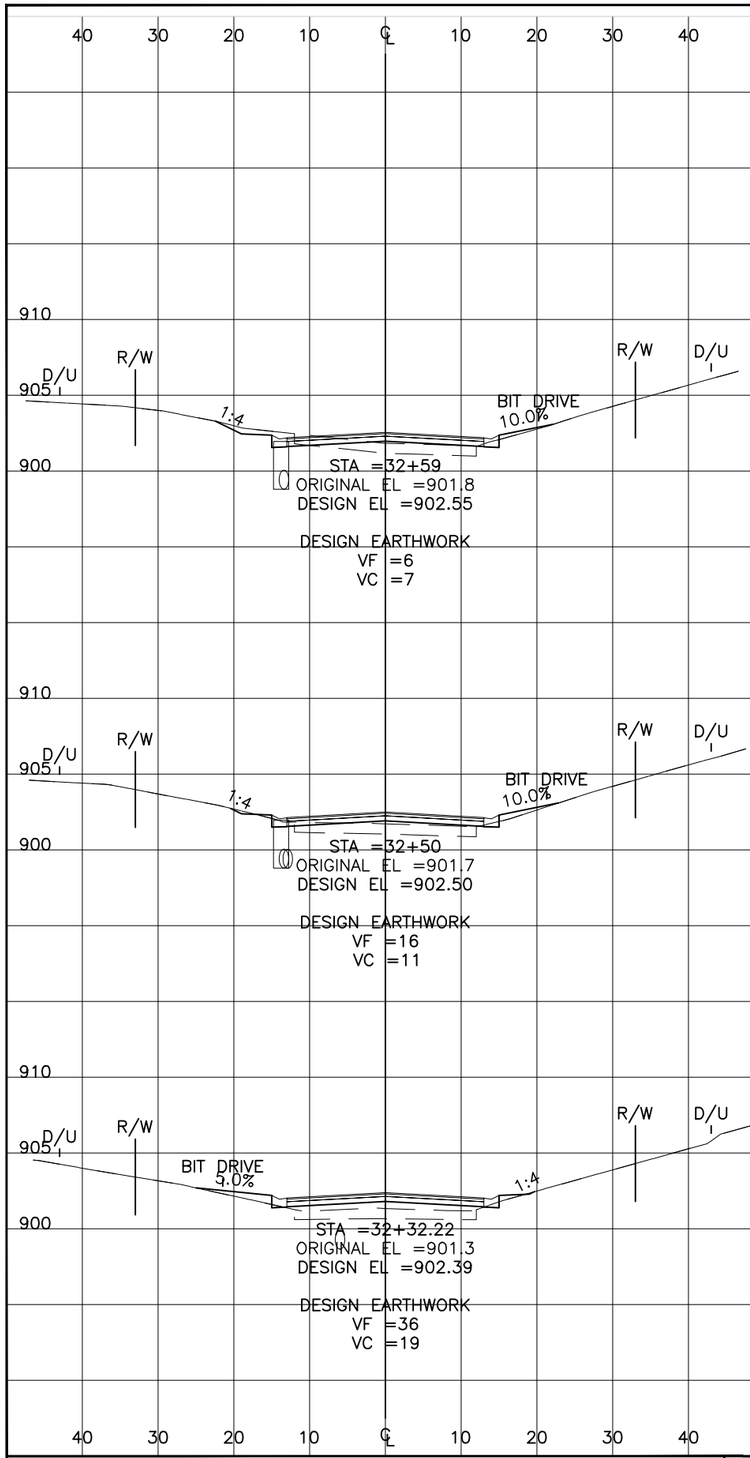
RFC ENGINEERING, INC.
Consulting Engineers

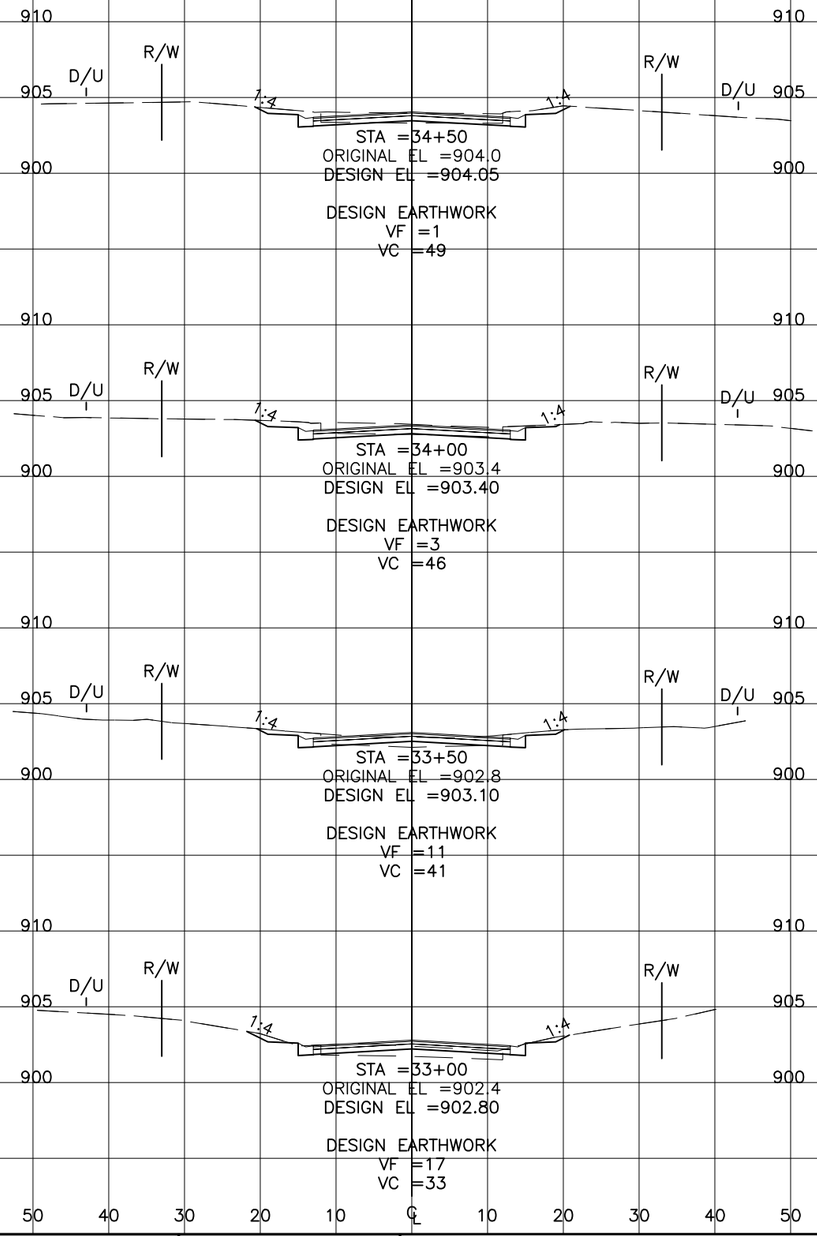
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

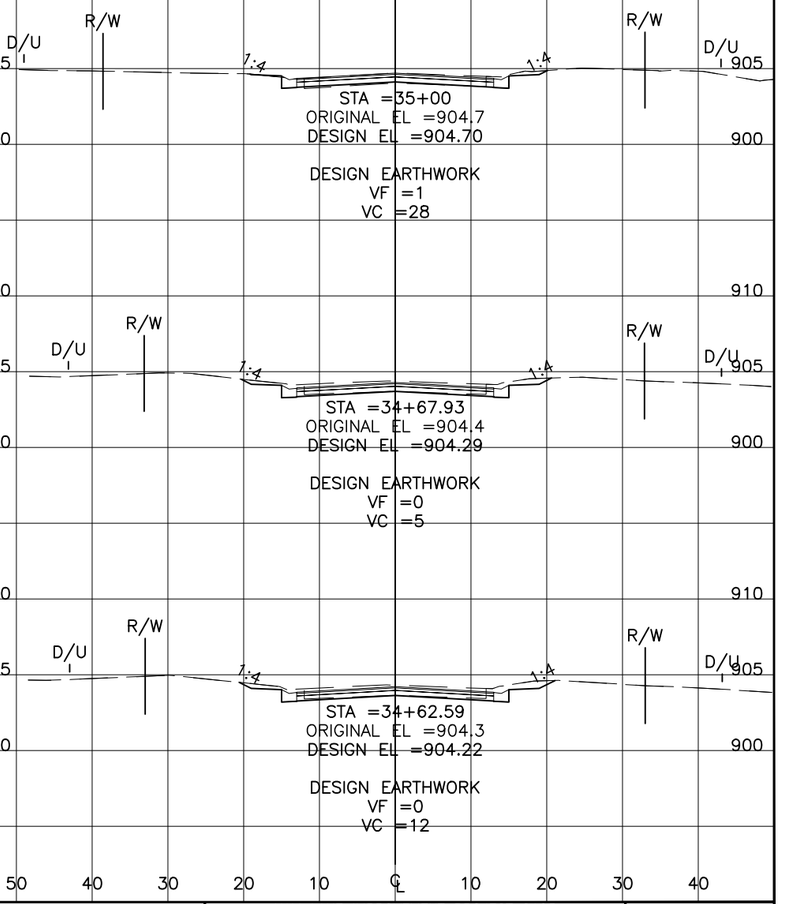
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
145TH AVENUE
CROSS SECTIONS

DWG: RC006021
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 43 OF 51
FILE: 34-2-155







GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:36

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Kreger
DATE 6/29/2022 REG. NO. 48768

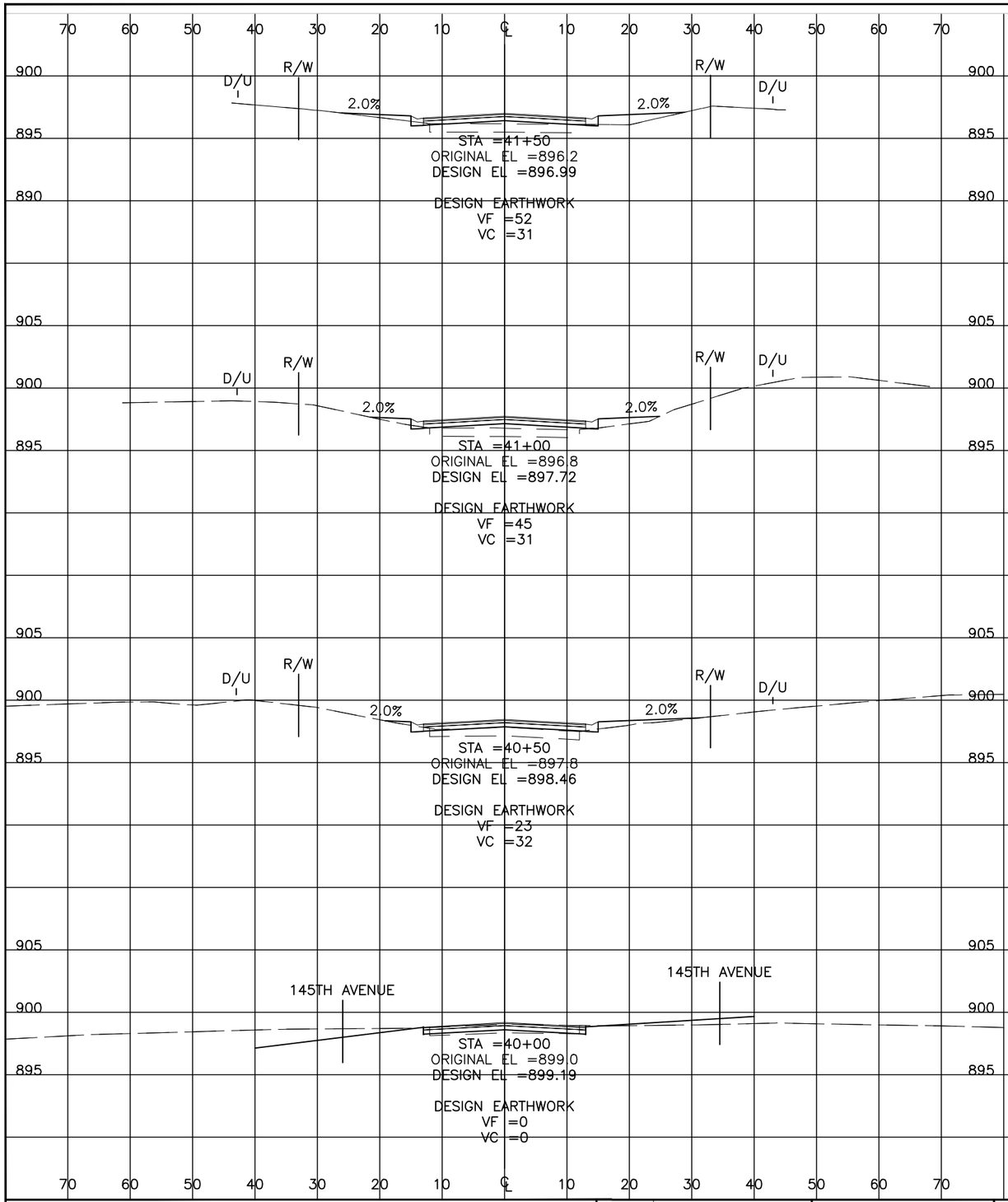
RFC ENGINEERING, INC.
Consulting Engineers

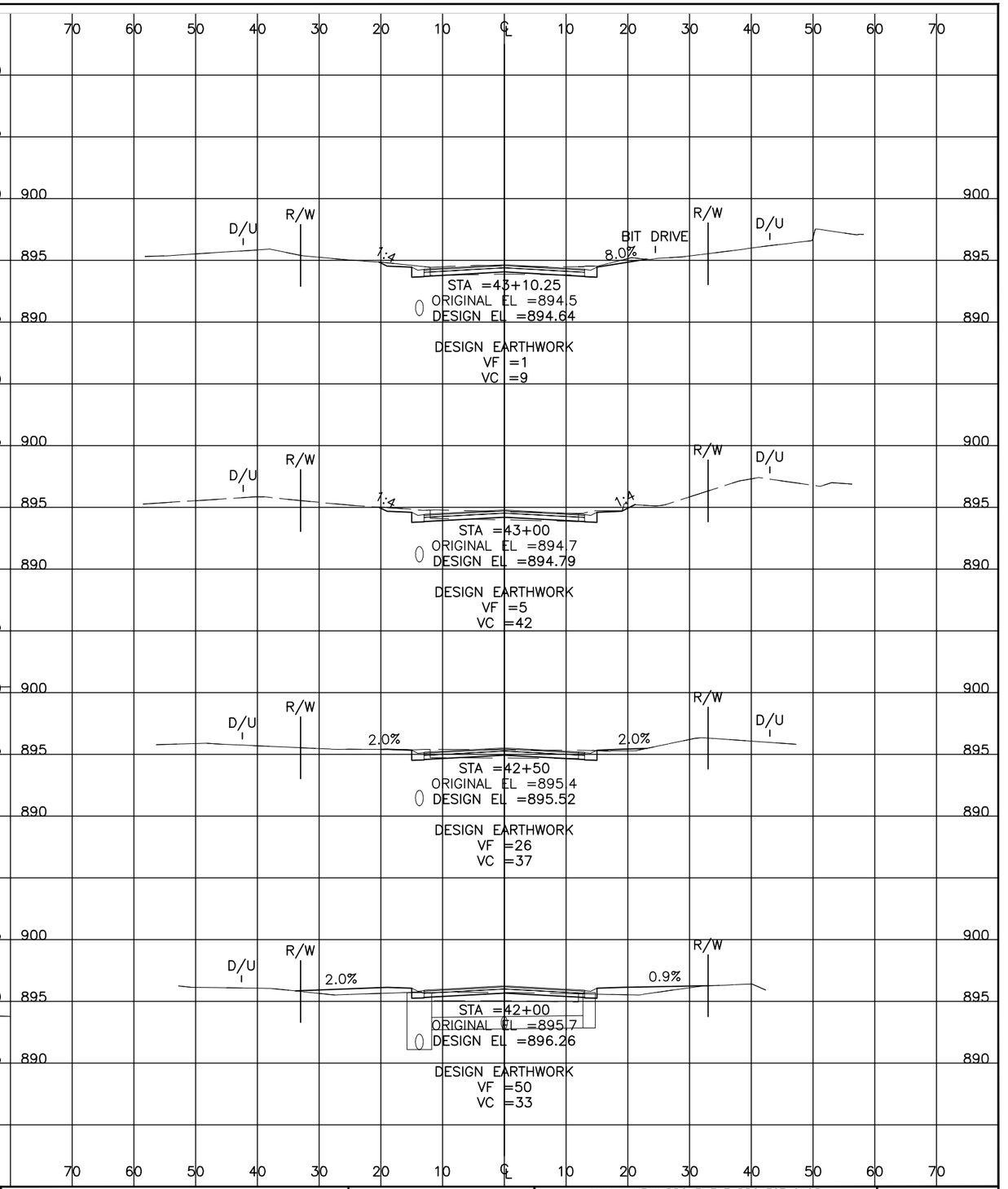
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
145TH AVENUE
CROSS SECTIONS

DWG: RC007021
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 44 OF 51
FILE: 34-2-156





GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:36

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dan Krughn
DATE 6/29/2022 REG. NO. 48768

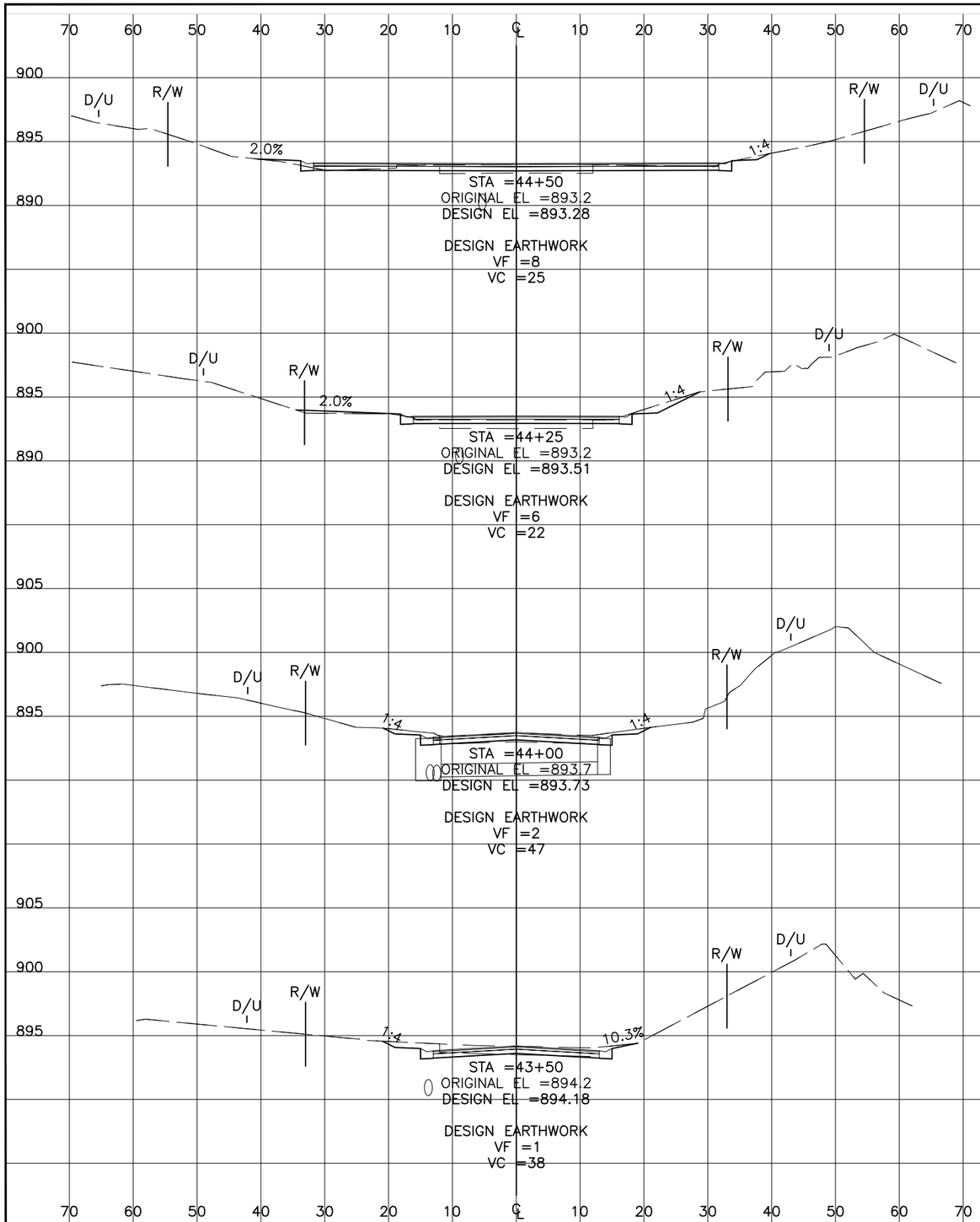
RFC ENGINEERING, INC.
Consulting Engineers

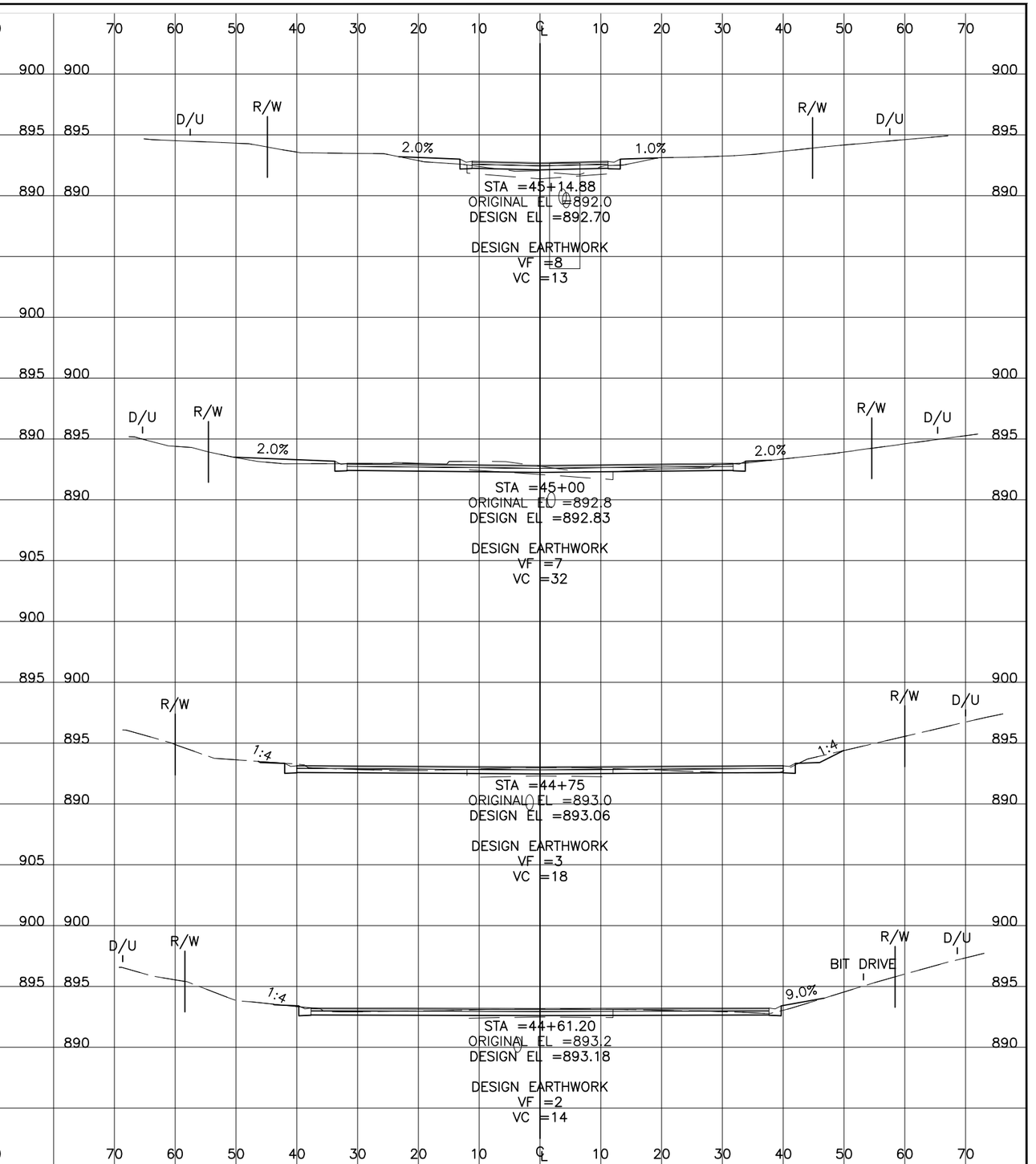
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
LONDON STREET
CROSS SECTIONS

DWG: RC001022
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 45 OF 51
FILE: 34-2-157





GOPHER ONE CALL STATE
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:36

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dave Kreger
DATE 6/29/2022 REG. NO. 48768

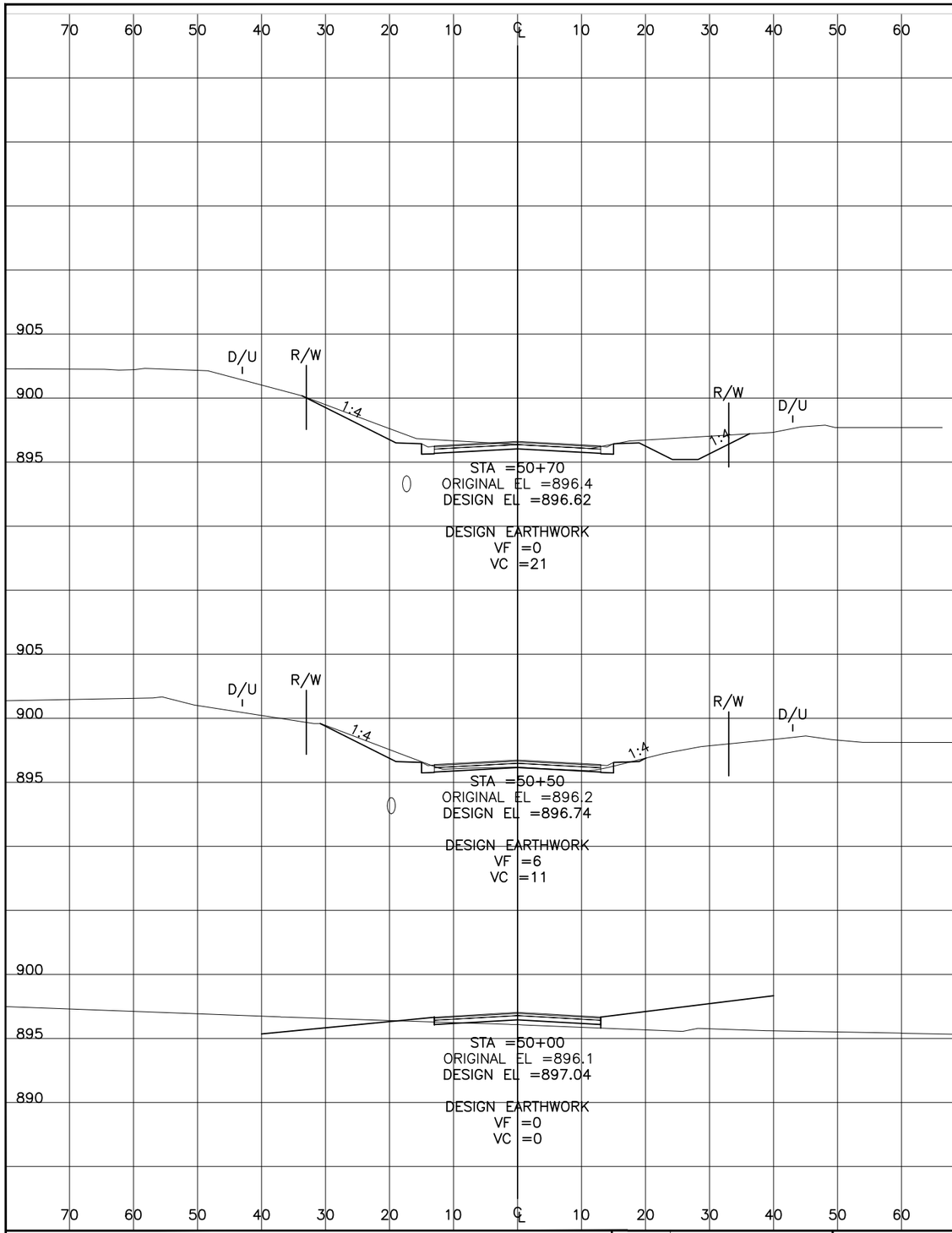
RFC ENGINEERING, INC.
Consulting Engineers

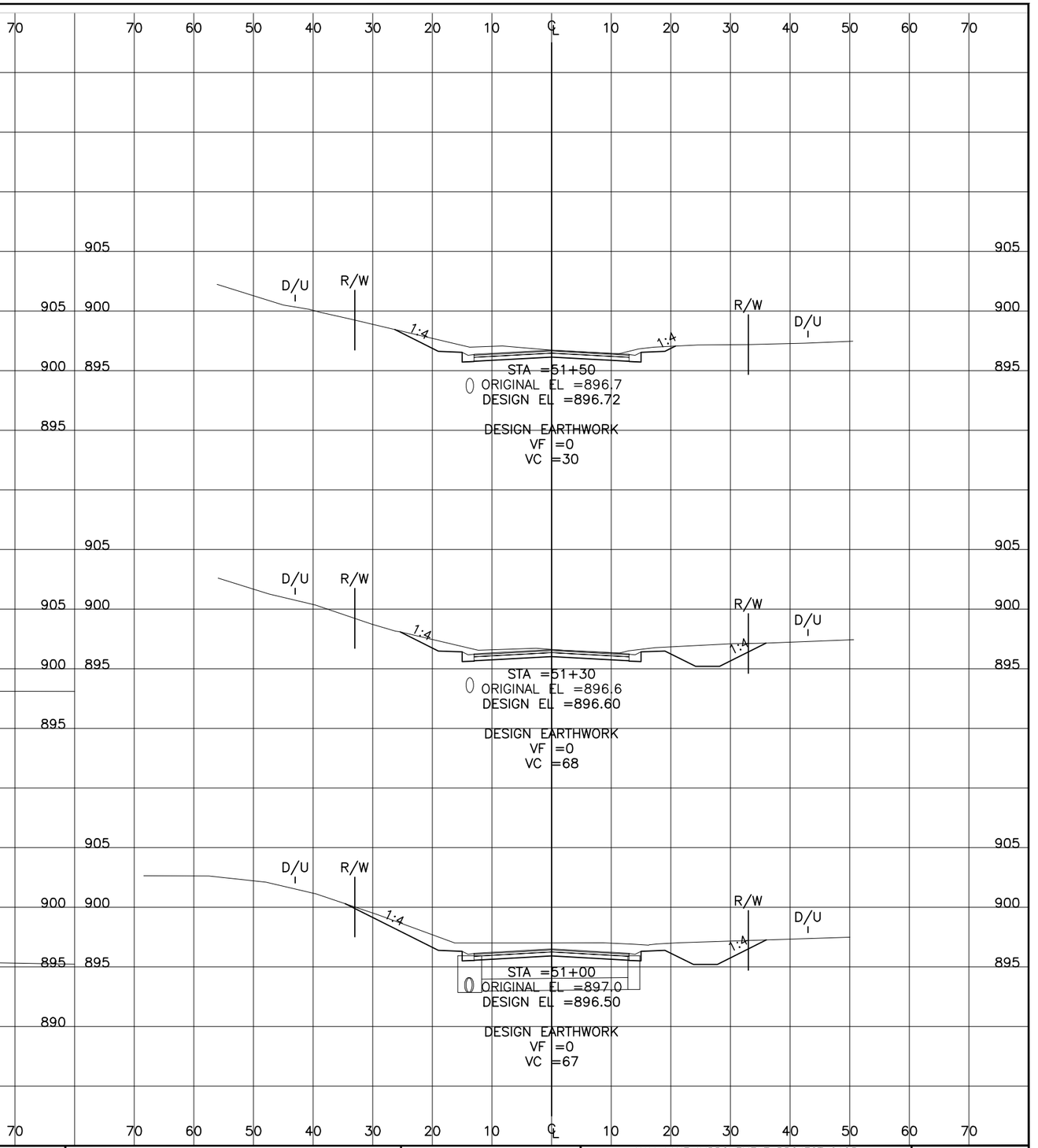
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
LONDON STREET
CROSS SECTIONS

DWG: RC002022
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 46 OF 51
FILE: 34-2-158





GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:36

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dan Krughn
DATE 6/29/2022 REG. NO. 48768

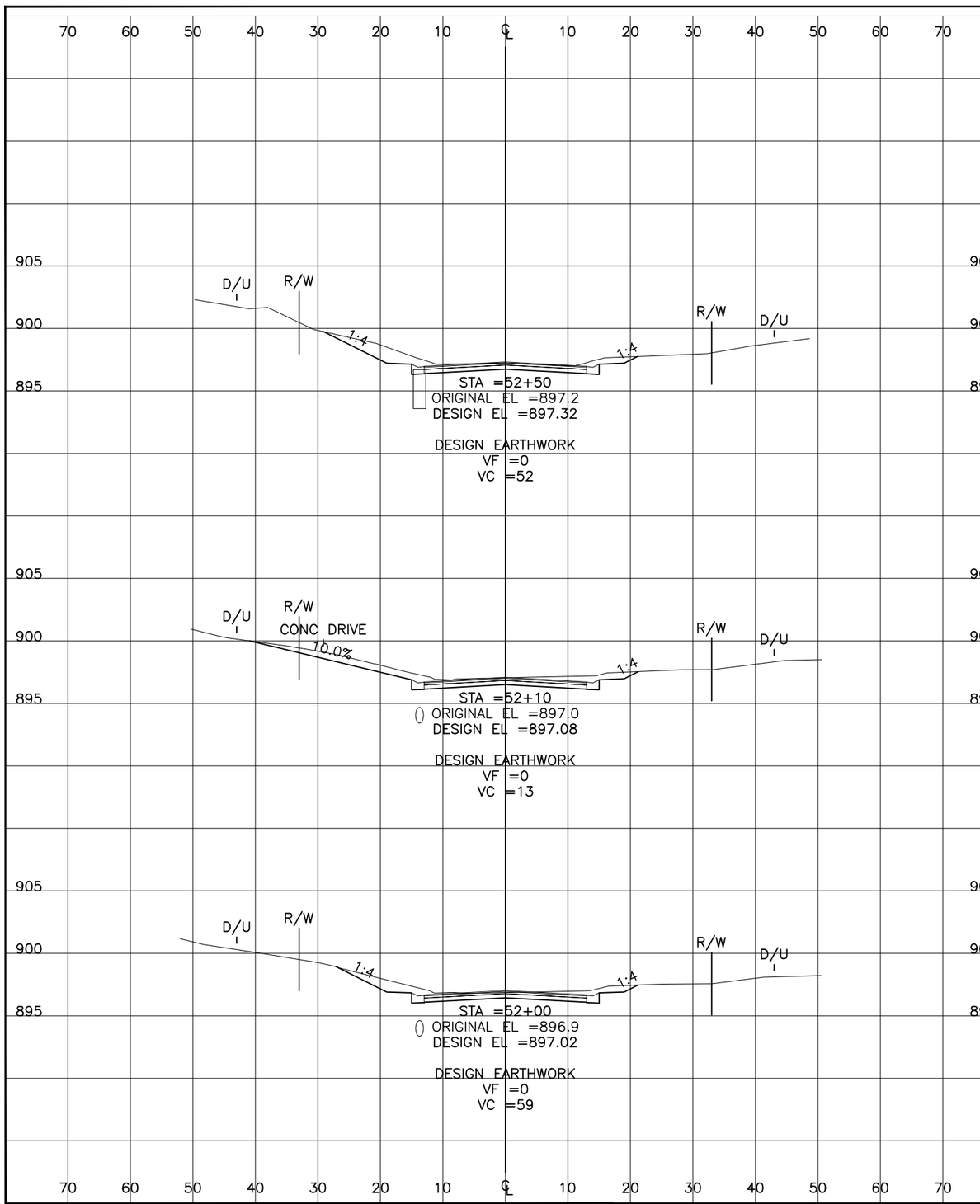
RFC ENGINEERING, INC.
Consulting Engineers

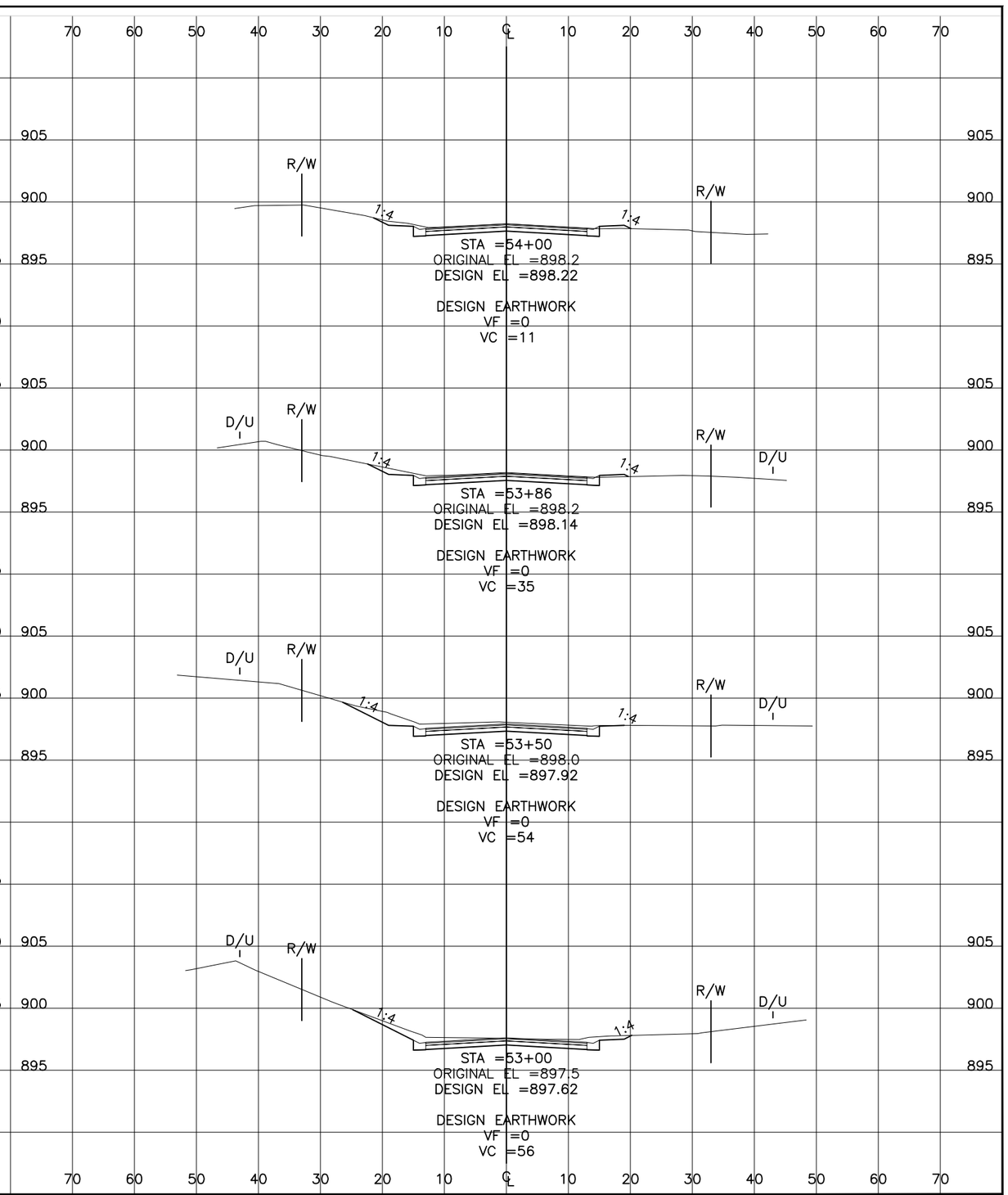
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
KENYON STREET
CROSS SECTIONS

DWG:	RC001023
DATE:	06/29/22
JOB NUMBER:	2105
SHEET:	47 OF 51
FILE:	34-2-159





GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:36

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dave Klugh
DATE 6/29/2022 REG. NO. 48768

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Consulting Engineers

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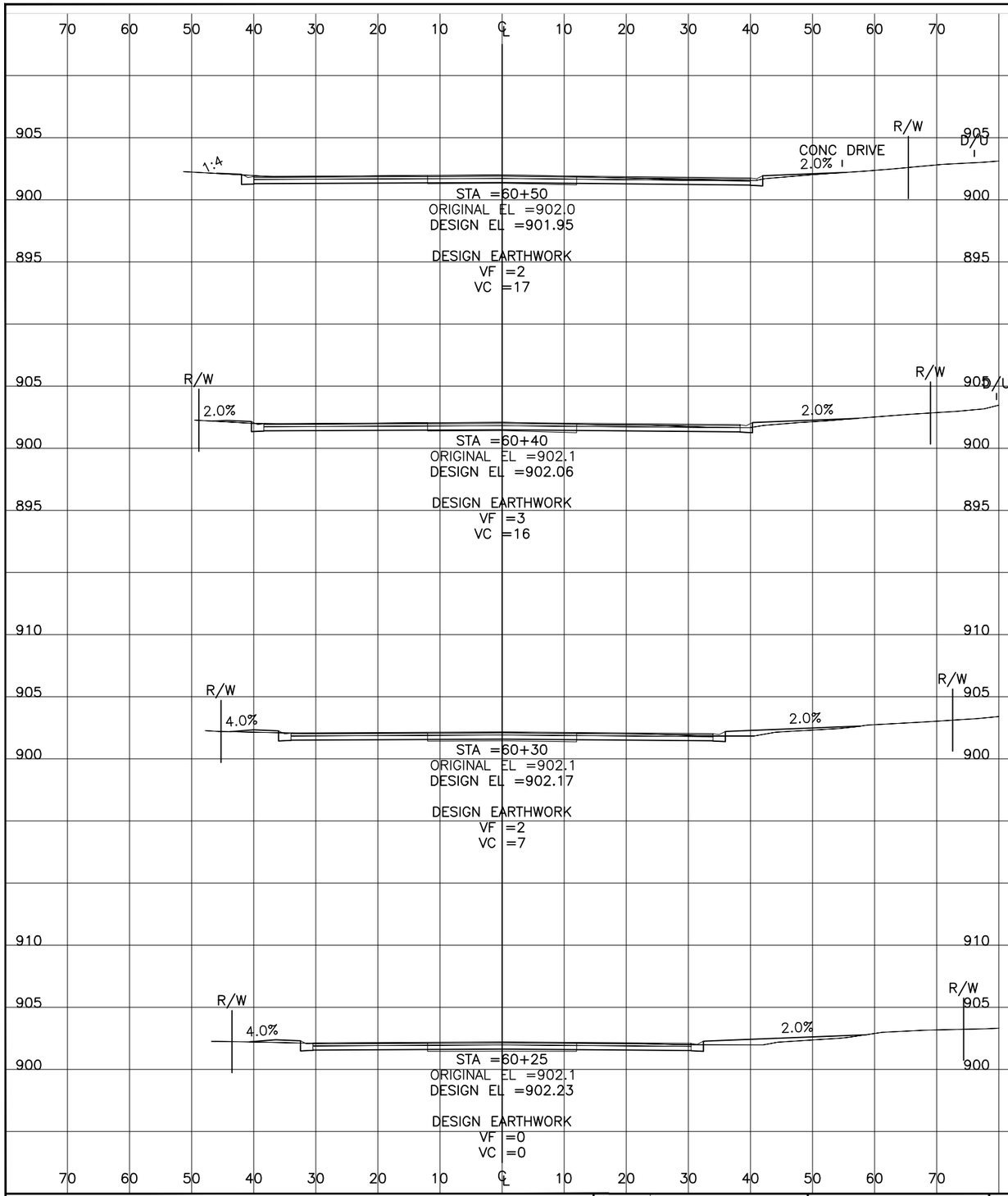
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
KENYON STREET
CROSS SECTIONS

DWG:	RC002023
DATE:	06/29/22
JOB NUMBER:	2105
SHEET:	48 OF 51
FILE:	34-2-160



GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:36

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dan Krughn
DATE 6/29/2022 REG. NO. 48768

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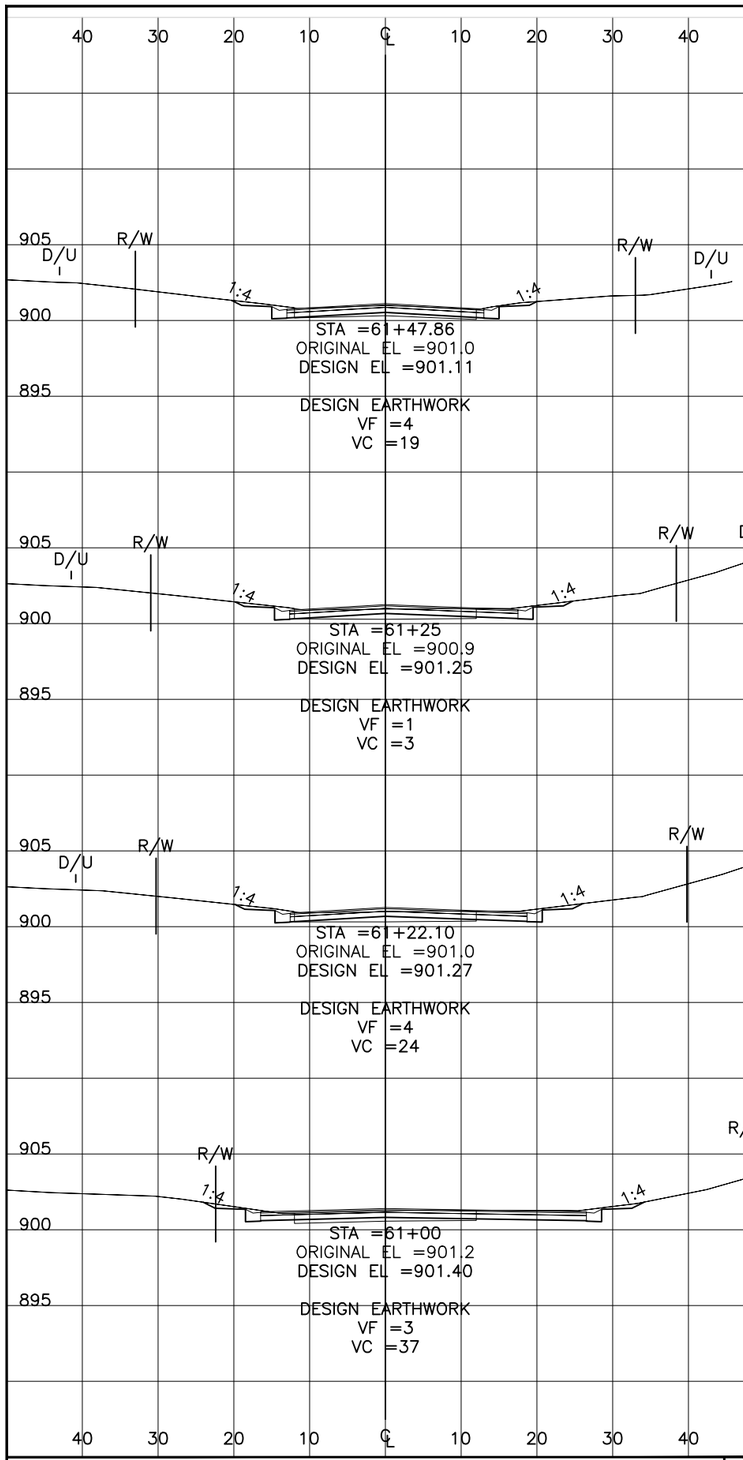
Consulting Engineers

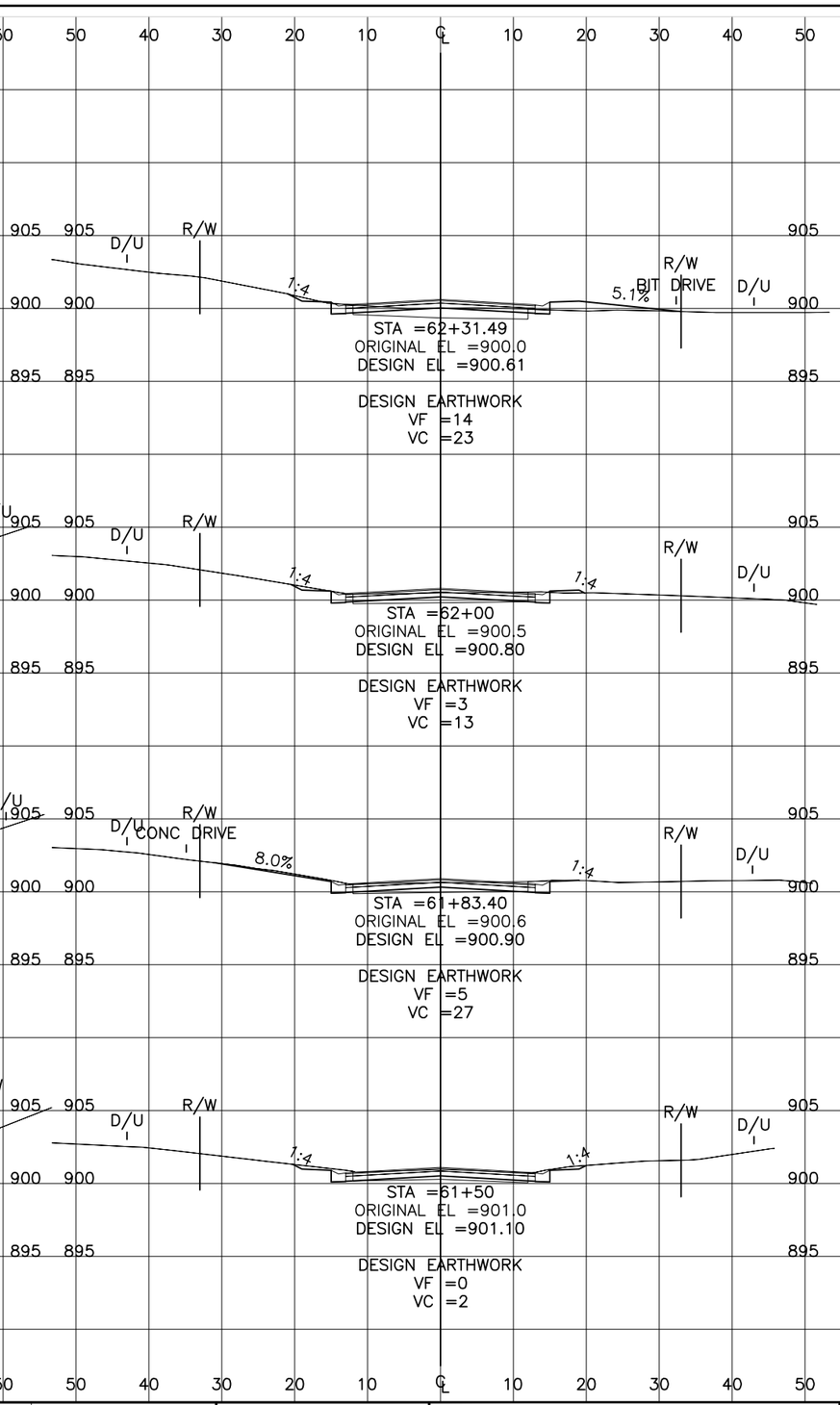
13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
Fax 763-862-8042

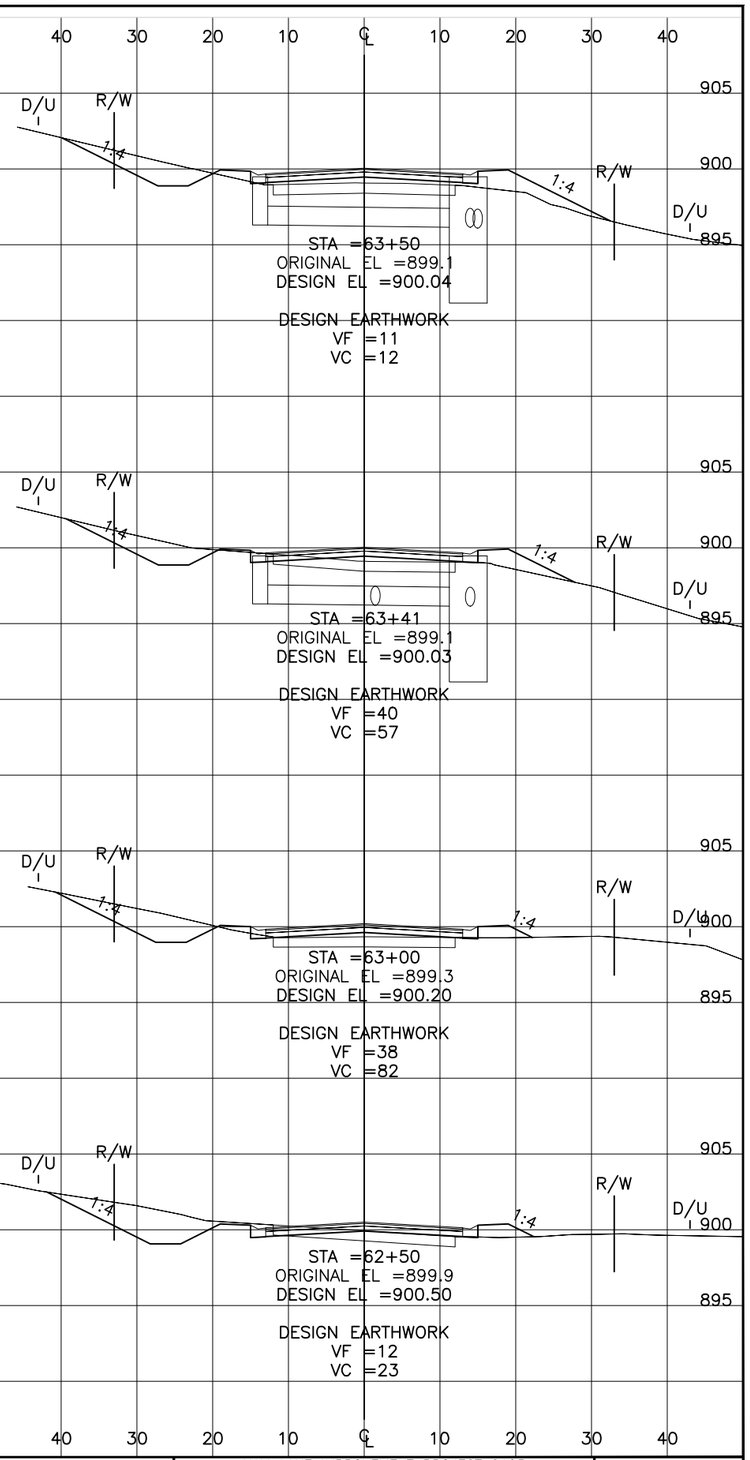
HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
146TH AVENUE
CROSS SECTIONS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG:	RC001024
DATE:	06/29/22
JOB NUMBER:	2105
SHEET:	49 OF 51
FILE:	34-2-161







GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:36

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
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XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

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Dan Krughn
DATE 6/29/2022 REG. NO. 48768

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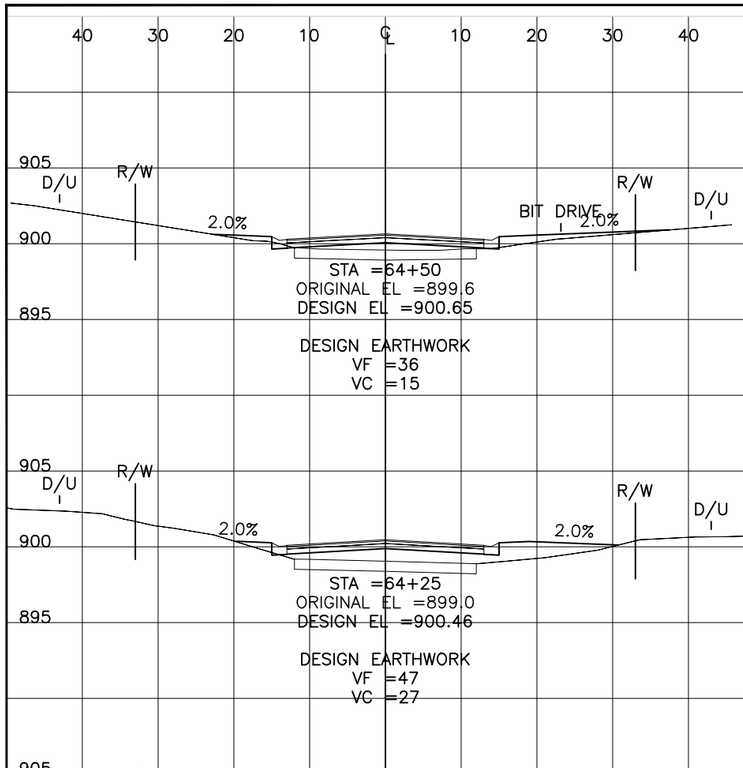
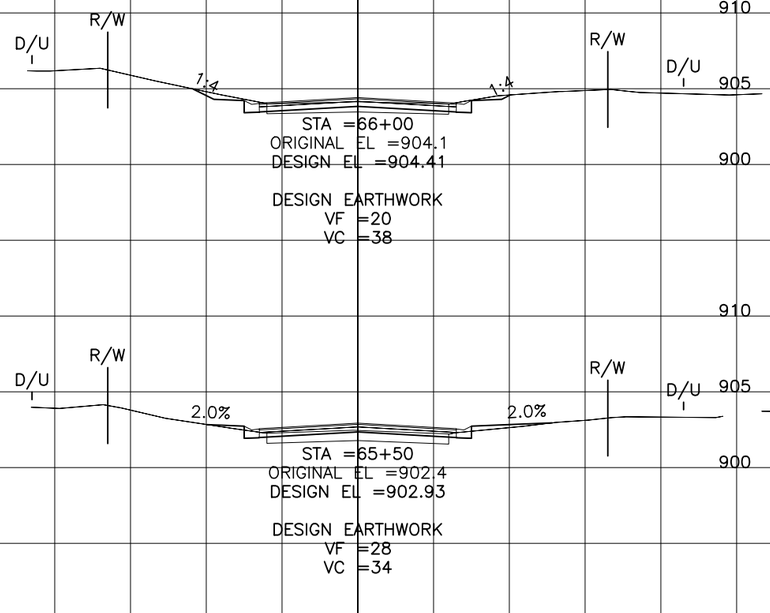
Fax 763-862-8042

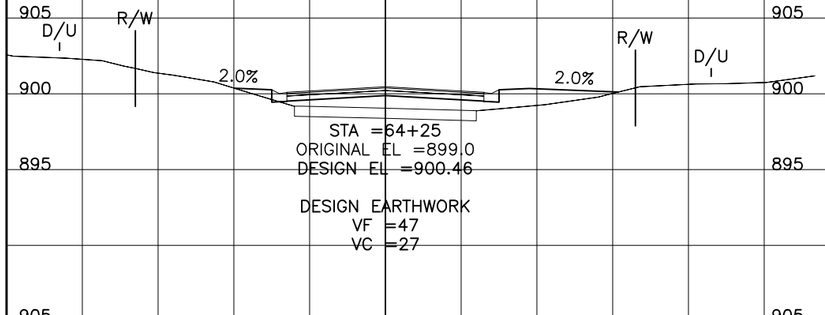
DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

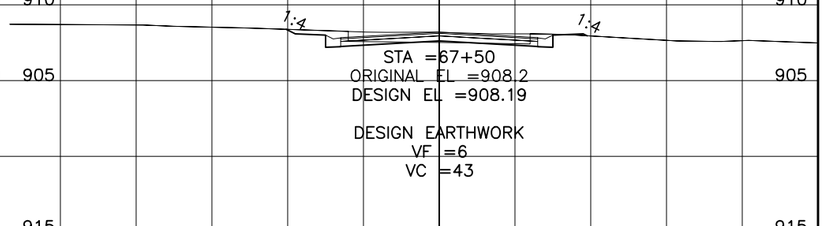
HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
146TH AVENUE
CROSS SECTIONS

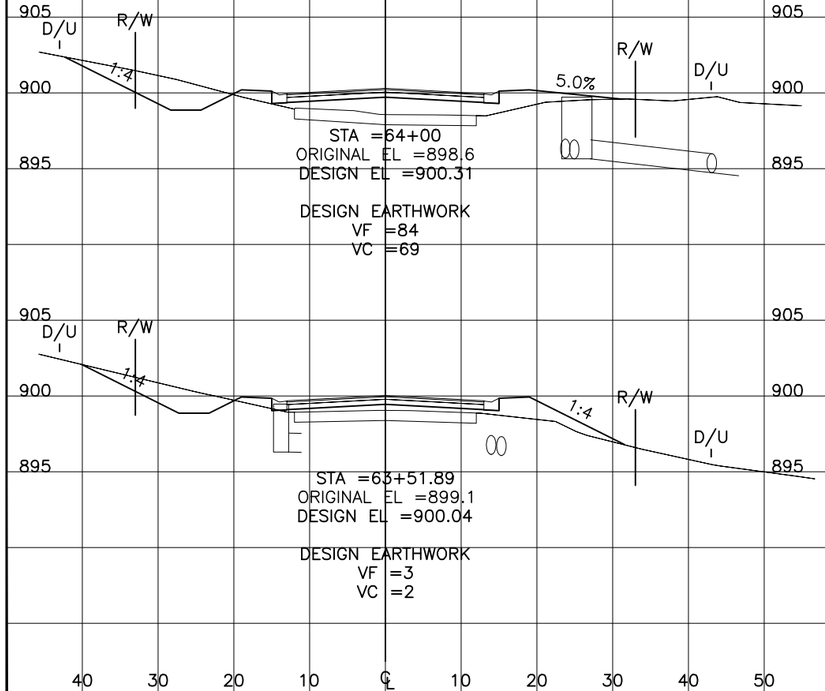
DWG:	RC002024
DATE:	06/29/22
JOB NUMBER:	2105
SHEET:	50 OF 51
FILE:	34-2-162

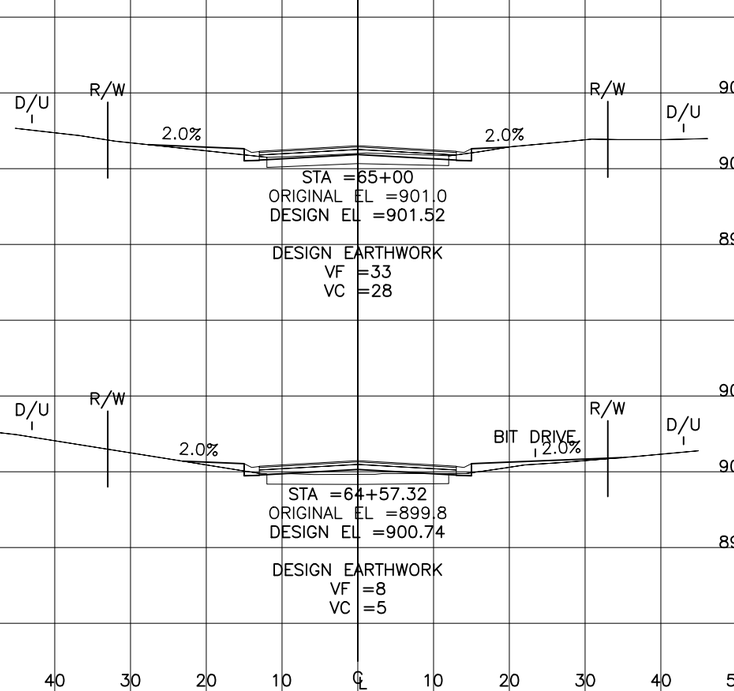


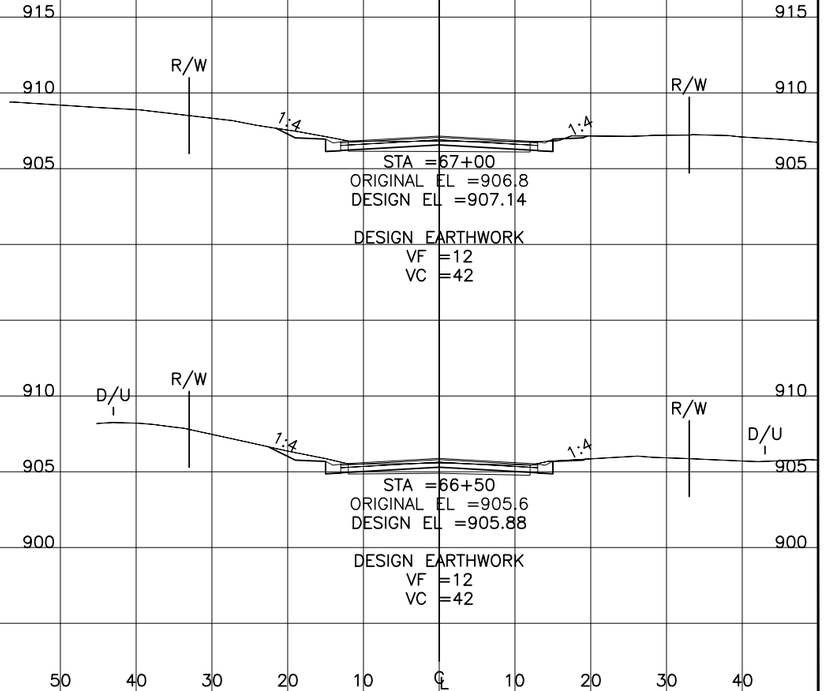












GOPHER STATE ONE CALL
800-252-1166 651-454-0002
PLOT DATE: 5/17/2023 12:36

UTILITIES:

CENTURYLINK	(763) 712-5017
CENTERPOINT ENERGY	(763) 323-2760
COMCAST	(952) 607-4078
CONNEXUS ENERGY	(763) 323-4268
XCEL ENERGY	(612) 526-4508

DATE	REVISION HISTORY
10/10/22	INTERNAL REVIEW
05/10/23	SURVEYOR COMMENTS
05/17/23	ANOKA COUNTY COMMENTS

I HEREBY CERTIFY THAT THIS PLAN WAS PREPARED BY ME OR UNDER MY DIRECT SUPERVISION AND THAT I AM A DULY REGISTERED PROFESSIONAL ENGINEER UNDER THE LAWS OF THE STATE OF MINNESOTA.
Dan Krueger
DATE 6/29/2022 REG. NO. 48768

RFC ENGINEERING, INC.
Consulting Engineers

13635 Johnson Street
Ham Lake, MN 55304
Telephone 763-862-8000
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HAM LAKE IMPROVEMENT PROJECT 2105
CREEK VALLEY STREET RECONSTRUCTION
145TH AVE NE, KENYON ST
146TH AVE NE AND LONDON ST
146TH AVENUE
CROSS SECTIONS

DESIGN BY: LDZ DRAWN BY: LDZ CHECKED BY: DAK

DWG: RC003024
DATE: 06/29/22
JOB NUMBER: 2105
SHEET: 51 OF 51
FILE: 34-2-163